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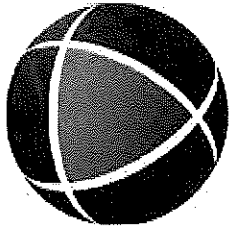
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ATMAE
ACCREDITATION

ATMAE ACCREDITATION GUIDE

July 2016

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Section 1 - General Information

About ATMAE Accreditation

Accreditation in general is the primary means of assuring and improving the quality of higher education institutions and programs in the United States. Active for the past 100 years, this private, voluntary system of self-examination and peer review has been central to the creation of a U.S. higher education enterprise that is outstanding in many respects.

ATMAE Accreditation is the public recognition awarded to academic programs that meet established criteria and educational standards. Accreditation decisions are based on evaluations whose purpose is to provide a professional judgment about the quality of an academic program and to promote institutional improvement. The main goal is to assure and enhance quality.

ATMAE accredits a wide array of technology, management and applied engineering degree programs in colleges and universities in the United States in areas such as Aviation Technology, Computer and Network Support Technology, Construction Management, Environmental Technology Management, Graphic Information Technology, Industrial Technology Management, Robotics and Manufacturing Systems, Safety Management, Visual Communication Technology, Architectural Engineering Technology, Mechanical Engineering Technology, and many others.

ATMAE's accreditation periods are four (4) years for initial accreditation and six (6) years for reaccreditation. Accredited programs are required to comply with published accreditation policies and have the responsibility to provide student performance and achievements to the public.

The History of ATMAE Accreditation

The "First Annual Conference on Industrial Technology in American Higher Education" was held at Kent State University in Kent, Ohio on October 29-30, 1965. The letter of invitation to this first conference listed, as one of four objectives, exploring the possibility for accreditation of industrial technology programs. The conference was attended by representatives from 28 institutions from 20 states and ten industry representatives. There was considerable interest in accreditation at this first conference and this interest resulted in the scheduling of a second conference at Kent State University on November 4-5, 1966.

The theme of the second conference was "Curriculum Standards and Accreditation" and the keynote speaker was Dr. Frank Dickey, Executive Director of the National Commission on Accreditation (NCA). Interest at the second conference resulted in the formal organization of the National Association of Industrial Technology (NAIT) and the establishment of several task forces to study, among other things, curriculum standards and guides.

About Association of Specialized and Professional Accreditors (ASPA)

ATMAE is a proud member of the Association of Specialized and Professional Accreditors (ASPA), a national non-profit organization providing a collaborative forum and collective voice for U.S. accreditation agencies that assess the quality of specialized and professional higher education programs and schools. ASPA represents its members on issues of education quality facing institutions of higher education, government, students, and the public. ASPA also advances the knowledge, skills, good practices, and ethical commitments of accreditors and communicates the values of accreditation as a means of enhancing educational quality.

Basic Steps in ATMAE Accreditation

1. An institution applies for an initial accreditation visit for the review of a program or programs/options that meet the approved definition of technology, management, and applied engineering. Applications are due by October 1 for visits between March 1 and May 1 the following year.
2. The program formally assesses its strengths and challenges based on the ATMAE standards and describes its plans for improvement in a one-time or continuously updated document called a Self-Study. The institution may engage the services of an ATMAE recognized accreditation consultant when preparing for the Self-Study.
3. ATMAE Personnel & Policy Committee assigns a team to review the Self-Study documentation and to conduct an on-site visit. Team assignments are made in the January-February timeframe. The Team chair and the institution representative plan the site visit.
4. At the completion of the on-site review, the team's findings are presented in a written report which is shared with the institution. Comments about factual errors are accepted by ATMAE prior to the hearings.
5. Hearings are conducted adjacent to the annual ATMAE conference in the fall. The Board of Accreditation reviews the reports and meets with program representatives and Team chairs. The team's recommendation is accepted or modified and the Board of Accreditation determines the terms of accreditation.
6. Formal notice of accreditation status is given to the institution. The program representatives implement the recommendations as specified by the terms of the accreditation.

Team Chair Responsibilities

As the name implies, Team chairs are in charge of the site visit team. To be eligible to serve as a team chair, it is required to have provided exceptional service on at least two site visits, to have attended team chair training within the most recent three year period, and to be formally approved by the Board of Accreditation.

The team chair must have knowledge of ATMAE's policies and procedures to ensure that they are followed before, during and after the visit. The Team chair is involved in coordinating activities and facilitators for sessions with the institution's representatives. Team chairs are not, however, expected to participate in the selection of other members of the visiting team.

Team chairs should provide the host with a good understanding of how to plan the site visit. A general site visit principle is that the program's routine should be interrupted as little as possible. The schedule should be agreed to early enough to enable the host to make the necessary arrangements well in advance. Additional responsibilities include:

- Contacting team members prior to the visit
- Coordinating the on-site schedule before and during the visit
- Serving as the primary liaison between the institution and ATMAE
- Chairing preparatory and on-site meetings
- Setting ground rules and keeping time on-site
- Facilitating team discussions
- Achieving team consensus
- Preparing the draft and final site visit report
- Responding to reports of factual errors in the draft report
- Mentoring newer team members
- Assigning roles and duties to other visiting team members
- Attending the accreditation hearings
- Providing post-visit evaluations of visiting team members
- Supporting institutions with year two progress reports

The team chair is responsible for the development of the written report and presenting the team's recommendation on the accreditation of the institution's programs and/or options. Given these responsibilities, the team chair should have:

- Detailed knowledge of ATMAE Accreditation Standards
- The ability to plan, organize and direct the site visit
- The ability to ask insightful questions and gather necessary information
- The confidence to deliver the exit report in a professional manner
- The writing skills required to draft a well-written team report that clearly conveys the findings and recommendations of the team to the Board of Accreditation

Personal and Professional Conduct

Members of visiting teams are expected to have certain competencies including effective interviewing, facilitation, and listening skills; effective evaluative and writing skills; effective team participation skills; consensus decision-making skills; and time management skills. In addition, the strength of any accreditation program is based on fairness, ethical conduct, and impartiality. Visiting team members are very visible representatives of the ATMAE accreditation process and, therefore, must avoid situations that could give rise to the appearance of misconduct.

Confidentiality

Visiting team members learn from site visits and are often exposed to useful ideas and tactics to improve their own organizations. Discretion should be used to keep information resulting from the accreditation visit confidential. This includes the contents of documents; information from meetings and tours; deliberations of the visiting team; information contained in team reports; and anticipated accreditation actions. Documentation, when in use, should be secured. Once the review is completed, documents should be returned to the preparer of the Self-Study or sent to the ATMAE office when the team's work is completed. After a visit is completed, requests for clarification or interpretation of information in the report should be referred jointly to the Director of Accreditation and the team chair.

Conflicts of Interest

Visiting team members are in a position of trust that requires them to exercise good judgment. Any other interests or obligations that might interfere must be avoided or openly declared. Team members must be careful to avoid the appearance of a conflict and should declare any past, present, or potential situations to ATMAE that could positively or negatively influence decisions. These situations include, but are not limited to:

- Being a graduate, employee or consultant of the institution under review.
- Having immediate relatives or close working colleagues at the institution.
- Having the inability to set aside positive or negative biases about an institution.
- Being in a situation where one can gain financially or professionally as a result of specific accreditation decisions.
- Being in a situation to put an institution at a disadvantage for the purpose of benefitting competitors.

When team assignments are made, ATMAE works with the institution to screen individuals who may have a real or perceived conflict of interest. ATMAE will not knowingly allow anyone to participate in a review that cannot remain impartial and objective.

Travel Procedures

Once the institution approves the team assignments, travel planning will be coordinated with the Team chair to determine:

- The date and latest time of on-site arrival of team members
- The date and earliest time of departure of team members
- On-site requirements such as ground transportation
- Lodging

Team chair travel arrangements will be made first. ATMAE will endeavor to complete all travel planning thirty (30) days before the scheduled visit and issue airline tickets fourteen (14) days before scheduled travel. Some ATMAE team members qualify for a government rate at hotels. Please let the travel coordinator know so that the inquiry can be made of the hotel. All visiting team members will pay out of pocket for meals and ground transportation, and will be reimbursed.

Extended Visits

There may be instances where a longer site visit is needed due to the number of programs/options under review. The Team chair will modify the sample schedule as needed to accommodate a longer visit.

Responsibilities of the Host Institution

The host will have undertaken a great deal of preparatory work before the visit. The Self-Study is the major result of this effort. As team chairs guide the institution contact through the process, some additional guidelines will assure a smooth visit.

- Everyone expected to participate in the site visit should be given enough advance notice so that the visit can be completed on schedule. The Program Head should provide the team chair with a detailed draft schedule of the names of those to be interviewed, their roles and office locations, and any other places to be visited.
- Those in charge of the site visit at the host institution should brief all participating administrators, faculty and students on what to expect. It will be useful to hold meetings to discuss some of the questions the visiting team is likely to ask.
- Materials that were gathered and used in the preparation of the Self-Study report should be assembled in a central location and readily available for review (the resource room).
- Every effort should be made to ensure that the visit is productive and collegial.
- Motivated by a normal sense of hospitality, hosts may want to plan social activities.
- Extensive social activities are not appropriate and the schedule does not allow it.

Final Preparation

Each visiting team member must understand their role and be prepared to gather and analyze information that will allow the team to validate the institution's response to the accreditation standards when they arrive on campus. The team should arrange their schedules to allow time to meet the day before the on-site review commences. Suggested activities include:

- A. Before the dinner meeting with the host:
 1. Become acquainted with one another.
 2. Become acclimated to the local area.
 3. Reinforce the role of being the "eyes and ears of the Board of Accreditation".
 4. Discuss methods to deal with possible reactions and confrontation.

- B. During dinner with the host:
 1. Make introductions.
 2. Describe the visiting team's mission.
 3. Encourage a productive discussion about the strengths of the program(s), department, faculty, students, facilities, and administration.
 4. Identify any changes to the on-site schedule.

Timeframes

Who	Pre-Visit Activity	When
ATMAE APC	Assigns visiting teams	January and February
Institution	Approves visiting teams	January and February
Team Chair	Welcome team members	On receipt of formal
Team Chair	Begin travel planning	On receipt of team
Team Chair	Contact the institution by letter or email	On receipt of team
Institution	Submit Self-Study report to Team chairs	At least 30 days before visit
Team Members	Flight arrangements made; lodging is confirmed	At least 30 days before visit
Team Chair	Acknowledge receipt of the Self-Study	On receipt
Team Chair	Discuss on-site plans and logistics	As soon as possible
Team Chair	Finalize the on-site schedule	As soon as possible
Team Chair	Schedule pre-visit meeting with team and institution	At least two weeks before visit
Team Members	Become familiar with the Self-Study	At least one week before visit
	On-Site Activity	
Team Chair	Facilitate meeting with local personnel	Eve of the on-site visit
Team Chair	Finalize the on-site schedule	Eve of the on-site visit
Team Chair	Coordinate interview and report writing assignments	On-site
Team Chair	Facilitate discussion about accreditation standards	On-site
Team Chair	Draw team consensus on each standard	On-site
Team Chair	Draw team consensus on recommendation to Board	On-site
Team Chair	Facilitate the exit interview	On-Site
	Post-Visit Activity	
Team Chair	Circulate a draft site visit report to team members	Within two weeks of the visit
Team Chair	Deliver a final draft report to the institution	Two weeks after the site visit
Institution	Respond to the draft on matters of factual accuracy	As soon as possible
Team Chair	Complete a final report for institution and ATMAE	Within 45 days of the site visit
Team Chair	Complete an evaluation of team members	Within 45 days of the site visit
Institution	File a response to the final report (optional)	Within 45 days of the hearings
Team Chair	Contact the institution to arrange pre-hearing meeting	Two weeks before hearings
Team Chair	Review of report for areas of partial and non-compliance	Before the hearings
Team Chair	Prepare a recommendation statement for the Board	Before the hearings
Team Chair	Present the recommendation to the Board	At the hearing appointment

Sample Site Visit Schedule

	Day 1 - Arrival
3:00 pm	Team members arrive in late afternoon, check into the hotel, and contact hosts
6:00 pm	Dinner for team members; optionally with faculty and administrators to get acquainted
8:00 pm	Team work session
	Day 2 - First Day on Campus
7:00 am	Team breakfast; optionally with the institution contact
8:00 am	Departure to host institution
8:30 am	Meetings with Program Head
9:30 am	Meetings with Dean/Associate Dean
10:30 am	Meetings with full-time faculty individually or in groups
12:30 pm	Lunch with faculty and/or staff and/or students, alumni, advisory board
1:30 pm	Team begins reviewing documentation
4:30 pm	Meetings with students, alumni, community partners, advisory board
6:00 pm	Working dinner for the visiting team only; set priorities for gathering and reviewing information
	Day 3 - Second Day on Campus and Wrap-up
7:30 am	Team breakfast
8:30 am	Meeting with the Dean and/or Program Head to facilitate any further arrangements
9:00 am	Additional interviews with faculty and administrators as needed
10:00 am	Visits to facilities, labs, classrooms, placement services, student services, library, budget director
11:00 am	Finish reviewing documentation; identify any additional information requirements
12:00 pm	Working lunch for visiting team only to arrive at consensus and begin a report outline
2:00 pm	Final exit interview with the appropriate officials
3:00 pm	Site visit is complete and the team departs

Evaluation within the Standards

ATMAE accreditation standards are created and revised through a consensus process that calls for input from educators, students, practitioners, employers, regulators, administrators, and the public. Input is gathered by staff and, after a lengthy process of comment and revision, accepted by ATMAE's governing bodies. Standards are subject to the review process on a five-year cycle.

Visiting team members will decide whether certain issues are within the scope of their authority and whether information is useful for decision-making. It is important that an adequate auditing process take place for those records supporting the factual presentation in the Self-Study report. A "hands-on" familiarity with program records is likely to be important.

Standards establish the level of quality around which evaluations and accreditation decisions are based. The visiting team should refrain from addressing issues that fall outside the standards. Teams must decide whether an issue has an impact on the program's ability to comply with the standards. The relevance of issues and the appropriate application of the standards will generate much discussion among team members. Discussions that result from site visits will test the application of the standards and will help improve the process over time.

The session should follow an agenda that includes the following:

A. Opening Remarks

1. Thank the host for their hospitality.
2. Reinforce the “eyes and ears of the Board” message.
3. Restate that the team does not consult but does verify the information in the Self-Study.
4. Compliment the host on an area that may or may not relate to accreditation standards.
5. Relate what the team has done in its efforts to validate the accreditation standards.

B. Presentation of Visiting Team Findings

1. Review only the accreditation standards that the visiting team found in partial or non-compliance.
2. With each, make a general statement regarding why the standard was found in partial or non-compliance. Do not allow this to become a discussion.

C. Recommendation to the Board of Accreditation

1. The visiting team will make a recommendation for each program and/or option that was reviewed:
 - a. Accreditation
 - b. Accreditation with a report in two years
 - c. Accreditation with a report and a site visit in two years
 - d. Non-Accreditation
2. The visiting team reports and recommends only. The Board of Accreditation makes the actual decision and takes appropriate action at the Board of Accreditation hearings.

D. Next Steps

1. A draft report will be presented for review for possible errors of fact or substance.
2. A representative of the institution should be present at the upcoming Board of Accreditation hearings. Provide dates and location of the hearings.
3. Future communications will take place with the team chair that is responsible for final preparation and filing of the report with the Board of Accreditation.
4. Only the Board of Accreditation makes decisions concerning program accreditation status. The visiting team, through the Team chair, recommends and will be prepared to defend the recommendation at the Board of Accreditation hearings.

E. Closing Remarks

1. Ensure that everyone understands what happens after the visiting team departs and what is expected of the institution’s contact person.
2. Offer the opportunity for comments by team members and the college representative.
3. Adjourn the exit interview.

Standard 3 - Program Title, Mission, and General Outcomes

- Are programs compatible with definitions of ATMAE and each degree level?
- Do programs have appropriate titles consistent with the approved ATMAE definition of technology, management, and applied engineering?
- Are general outcomes established for each program/option?
 - o Specific measurable competencies are written within the framework of the general outcomes.
- Have the general outcomes been validated by more than one source? Normal sources for validation are through the use of:
 - o external experts
 - o an industrial advisory committee
 - o follow up studies of graduates (after the program is in operation)
- Institution has legal authority from the State to offer ATMAE programs
- Institution is regionally or nationally accredited
- University/college community understands the program(s)
- Business/industry community understands the program(s)

Standard 4 - Competency Identification & Validation

- Does each program/option have its own measureable competencies tied to the general outcomes
- Have measurable competencies been validated by
 - o external experts
 - o an industrial advisory committee
 - o follow up studies of graduates after the program is in operation

Standard 5 - Program Structure & Course Sequencing

- Is there a specific list of courses and credit hours that are being counted toward each foundation category included in the Self-Study Report and reported on Table C?

A. Associate Degree

- Are there a minimum of 60 semester hours required for the Associate Degree?
- Are there 6-9 hours of both written and oral communication?
- Are there 3-9 hours of math?
- Are there 3-12 hours of physical sciences? If life science is included, does it make sense for the program/option?
- Are there 29 hours of management and/or technical courses?
- Are there between 0 and 12 hours of electives?

Standard 6 - Student Admission & Retention Standards

- Is there evidence showing that the quality of technology, management, and applied engineering students is comparable to the quality of students enrolled in other majors at the institution?
- Are the standards for admission and retention of technology, management, and applied engineering students similar to standards for other programs on campus? Are the test scores and grade rankings of ATMAE programs similar to other programs at the institution?
- Are the general grade point averages of technology, management, and applied engineering students comparable to other programs at the institution?

Standard 7 - Transfer Course Work

- Does the institution have written process for evaluation of transfer coursework?
- Does the department faculty have input into the transferability of technical coursework?
- Does the process ensure that the transfer coursework satisfies the ATMAE foundation requirements?

Standard 8 - Student Enrollment

- Are there an adequate number of program majors to sustain the program, and to operate it efficiently and effectively?
- Are there state, or local requirements on the minimum number of majors/graduates to sustain a program? If so, do any of the programs/options fall below that standard and what is the process for addressing these issues?

Standard 9 - Administrative Support & Faculty Qualifications

- Are there policies and procedures for faculty selection, appointment, reappointment and tenure that are clearly specified and conducive to the maintenance of high quality instruction?
- Are faculty teaching, advising, and service loads reasonable and comparable to the faculty in other professional program areas at the institution?
- Is there appropriate administrative support from the institution for the technology, management, and applied engineering program/option including appropriately qualified administrators, an adequate number of full time faculty members and budgets sufficient to support program/option goals?
- Are the faculty assigned to teach courses in the technology, management, and applied engineering program/option appropriately qualified?
 - o Faculty qualifications shall include emphasis upon the extent, currency and pertinence of: (a) academic preparation; (b) industrial professional experience (such as technical supervision and management); (c) applied industrial experience (such as applied applications); (d) membership and participation in appropriate technology, management, and applied engineering professional organizations; and (e) scholarly activities.

Standard 12 - Program/Option Operation

- Are syllabi for management and/or technical courses presented? Look for evidence (two or more) of regularly collected data from graduate assessments.
- Do these syllabi describe appropriate course objectives and content? Review syllabi for the program/option and see that they consistently include course objectives and content.
- Do these syllabi list references, student activities and evaluation criteria? Review syllabi for the program/option and see that they consistently include student activities for successful completion of the course and evaluation criteria.
- Are examples of student's management and/or technical graded work available for the team to review? The resource room should have examples of graded student work in management and/or technical courses required in the program. Review these examples to ensure the level of instruction is appropriate and the evaluations are appropriate and reflective of current ATMAE program practices.
- Are the students motivated and being appropriately advised? Meet with students in the program and assess their perception of the program and through those discussions determine if the students are motivated towards completing their degree and working in the field. Meet with those on campus that are responsible for advising both incoming and continuing students in the programs under review. This often means meeting the director of the advising center to ensure that the program's students are being advised in a manner equal to the advising for students in other majors.
- Does the scheduling of instruction allow students to complete the degree in a timely manner? Review the course schedule for the current and past semester and see that the courses offered are necessary.
- Is the quality of the instruction adequate to give the students the knowledge, skills and abilities identified in the program outcomes?
- Do students and faculty observe safety standards?
- Are resource materials readily available?
- Are assessment measures used to determine student mastery of the competencies that have been identified for each course?
- Is there evidence of appropriate supervision of instruction?
- Are placement services available to graduates?

Standard 13 - Graduate Satisfaction with Program/Option

- Are graduate program/option evaluations made on a regular basis (two to five years)? Look for evidence (two or more) of regularly collected data from graduate assessments.
- Do these evaluations include attitudes related to the importance of the general outcomes and specific competencies identified for the program/option? Look for questions and responses on the graduate assessments that seek attitudes towards the importance of the general outcomes and competencies identified for the program/option.
- Is summary data available for graduate evaluations of the program/option? The institution should report the graduate assessment in summary form (tables, charts and executive summary); the team should not have to derive conclusions from anecdotal evidence.

Standard 18 - Student Success in Passing Certification Exams

- Is one of the goals of the program/option to prepare students to pass certification exams?
 - o If so, are they tracking and confirming success?
 - o Is summary data provided on the results of these exams?

Standard 19 - Advisory Committee Approval of Overall Program

- Is there an industrial advisory committee that represents each program? One advisory committee with selective representation can represent multiple programs, or each program can have their own.
- Are there policies in place that :
 - o Define the criteria for committee member selection?
 - o Define the process for selecting members?
 - o Indicate the length of a member's appointment/term?
 - o Define the committee's responsibilities?
 - o Indicate the frequency of meetings (at least once per year)?
 - o Indicate the methods of conducting business (Robert's Rules of Order, etc.)?
- Is a roster of members and past minutes available for the team's review?

Standard 20 - Outcome Measures Used to Improve Program

- Is there evidence provided that demonstrates that multiple outcome measures are used to improve the overall program (Graduate Satisfaction with Program/Option; Employment of Graduates; Job Advancement of Graduates; Employer Satisfaction with Job Performance; Graduate Success in Advanced Programs; Student Success in Passing Certification Exams; and Advisory Committee Approval of Program) reported on table B?
- Is there evidence that program stakeholders have been involved?

Standard 21 – Program Responsibility to Provide Information to the Public

- Did the program provide live website link to where the public can access information on student performance?
- Sources of potential information include, but are not limited to: student graduation rates from the program; average starting salaries; mean grade point averages; promotions achieved; time to secure first position; average years to complete the degree; and student awards/scholarships received.

- Criticize constructively when needed; this is helpful to the institution as well as to the Board.
- Refrain from making excuses for the institution. Do not attempt to justify an answer to a Board member by referring to the Board's response to an earlier ruling in the hearings.
- Do not attempt to justify why the college/university did or did not meet a particular accreditation standard.
- Board members appreciate any clarification of a particular finding, especially if there appears to be confusion.
- Total time before the Board, including questions and comments, should not exceed fifteen (15) minutes.

Section 8 - Glossary

Accreditation

A voluntary, non-governmental system of evaluation used to protect the public interest and to verify the quality of service provided by academic programs and institutions. The goal of accreditation is to ensure that education provided by institutions of higher education meets acceptable levels of quality.

Accredited

Programs that request an evaluation and that meet certain criteria are then conferred with "accredited" status.

Accreditation Actions

A decision made by an agency affecting the accreditation status of a program. ATMAE Board actions include (a) accreditation, (b) accreditation with a progress report at two years, (c) accreditation with a progress report and visit at two years, and (d) non-accreditation.

Adverse Action

Withdrawal or denial of accreditation by the accrediting agency.

Appeal

The right and process available to a program for the review of an adverse accreditation action.

Compliance

The extent to which a program conforms and adheres to accreditation standards. ATMAE uses Compliant (C), Partially Compliant (P) and Non-Compliant (N) during its evaluations.

Comprehensive Review

The periodic review of a program by visiting teams to determine conformity to standards. The process includes the submission of a Self-Study, undergoing an on-site evaluation, and a decision being made.

Conflict of Interest

Any personal, financial, or professional interest that might create a conflict with an evaluator or a member of a decision-making body's ability to fairly and objectively carry out accreditation responsibilities.

Continued Accreditation

Accreditation status that is granted to programs that continuously demonstrate evidence of their conformity to standards.

Self-Study Report

A document prepared by the program or institution as part of the comprehensive review process. The document describes the program and institution, how it meets the standards, analyzes its strengths, weaknesses, and challenges, and establishes the program's plans and goals for future development and continued compliance with the standards.

Standards

Accreditation standards are statements that define and set expectations about fundamental essentials for education quality. Standards address educational and operational issues and reflect the consensus of experts in a discipline. Reviewers examine evidence that the program operates as intended and improves as necessary.

Substantive Change

Significant modification, expansion or contraction in the nature or scope of an accredited program that must be reported to the accrediting agency.

Transparency

The concept of making accreditation processes easier to understand including opening them to public scrutiny and making them subject to clear methods of challenge or change.

2017 Accreditation Handbook



ACCREDITED BY
ATMAE

The Association of Technology,
Management, and Applied Engineering

Associate Degree Programs
Baccalaureate Degree Programs
Master Degree Programs

Accreditation Policies can be found in a separate document on the ATMAE website
Published by the Association of Technology, Management, and Applied Engineering

A. Guidelines for Institutional Self-Study Report

The institution must complete and submit a Self-Study Report which is a qualitative assessment of the strengths and limitations of the program(s), including the achievement of program and institution objectives.

The self-study should be provided electronically to both the team chair and the Director of Accreditation.

The following outline shall be used in developing the report:

Institutional Self-Study Report

The On-Site Visit

- A. Date of the Visit
- B. Visiting Team Members
- C. Proposed On-Site Visit Agenda
- D. Current Accreditation Status of Program(s)

General Information

- A. The Institution
 1. Name and Address
 2. Number of Students Enrolled
 - a. Total
 - b. Full-time
 - c. Part-time
 - d. Full-time Equivalent
 3. Total Full-Time Equivalent Faculty
 4. Operating Budget
 - a. Current
 - b. Five-Year History
 5. Institutional Accreditation Organization(s) and Dates of Accreditation. (Note: an institution shall document any actions taken by other accrediting agencies which have either denied to the institution or program accreditation or pre-accreditation status, have placed the institution or program on public probationary status, or have revoked the accreditation or pre-accreditation status of the institution or program.)
 6. History of Accreditation by the Association of Technology, Management, and Applied Engineering
 7. Administration of the Institution
 - a. Head
 - b. Chief Academic Officer (provide name and address)
 8. Major Academic Units within the Institution
 9. Institutional Mission and Goals
 10. Relationship of Institution to Superior Governing Body
- B. Administrative Unit(s) Information
 1. Name and Address of Institution and/or Department Administrative Unit(s)
 2. Name(s) of Dean and/or Department Head

B. Outcomes Assessment

Definition of Terms

Program: A defined course of study leading to a degree program which is denoted by a unique name on the official transcript.

Option: An official subset of a program which may be denoted by a unique name on the official transcript. (Program options are sometimes referred to as concentrations or specializations, this document will use the term option to represent program options, concentrations or specializations)

Program Title: The official approved title of the degree program being considered for accreditation.

Program Mission: A general statement which identifies the broad purpose of a program.

Program Outcomes: A list of general expectations for "what" you expect students to achieve in the form of knowledge and skills as a result of the program.

Outcome Measures: A series of activities, using instruments such as surveys, undertaken during or after students have completed a program to determine the overall effectiveness of the outcomes and competencies identified and covered in the program.

Student Learning Competencies: A series of measurable activities that demonstrate "how" students are achieving the desired outcomes generally take place in courses.

Student Competency Measures: The activities used to determine if students have achieved a competency such as written tests, demonstrations & observations, case studies & discussion groups, exemplars, peer reviews, self-assessments, presentations, mock events and monitors.

ATMAE approved definitions for degree programs are as follows:

- A. **Associate Degree:** Programs/options that prepare individuals for positions that contribute to the design and development, production, distribution or operational support of complex technical systems.
- B. **Baccalaureate Degree:** Programs/options that prepare individuals for positions that involve the management of complex technological systems.
- C. **Master's Degree:** Programs/options that prepare individuals for career advancement in that involve the management of complex technological systems

The Association of Technology, Management, and Applied Engineering (ATMAE), like other regional and professional accreditation bodies, is recognized for accreditation by the Council for Higher Education Accreditation (CHEA). The inclusion of outcomes assessment as part of accreditation is mandated by CHEA. This means that applications for accreditation of Technology, Management, and Applied Engineering programs by ATMAE must demonstrate that institutions have plans in place for assessing educational outcomes. These plans must show evidence that the results of these assessments have led to the improvement of teaching and learning processes and improved preparation of program graduates to enter professional positions upon graduation.

Standards for Accreditation

The following items are all the items that need to be responded to.

Standard 1 - Preparation of Self-Study. The Self-Study Report shall follow the guidelines of the Accreditation Handbook version in place at the time of the accreditation application. The report shall be completed by a representative portion of the institutions administrative staff and teaching faculty directly related to the program(s) to be reviewed. Students should be involved in the Self-Study process.

Standard 2 - Program Definition: A program is a set of courses leading to a degree. A program may have more than one option, specialization or concentration, but specific course requirements for each option shall be clearly specified, and as appropriate all program/options shall meet ATMAE standards. In situations where an option is not appropriate for ATMAE accreditation based upon the approved definition of technology, management, and applied engineering, the request for accreditation should clearly state which option, concentration, or specialization is seeking accreditation and which ones are excluded. The case for exclusion should be made with the application for accreditation. If an option, concentration or specialization is excluded and the program becomes accredited, the program must identify specifically which concentrations, options and specializations are and are not accredited in all their publications and promotional materials that mention accreditation.

Program Inputs:

Standard 3 - Program Title, Mission, and General Outcomes: Each program/option shall have appropriate titles consistent with the approved ATMAE definition of Technology, Management, and Applied Engineering. Representative student transcripts for each program and/or option shall be made available for the visiting team. Please make sure you respond to the information in each paragraph below.

The program/option title, definition and mission shall be compatible with the ATMAE definition of Technology, Management, and Applied Engineering. The program/option shall lead to a degree at the associate, bachelor, or master's level.

General outcomes shall be established for each program/option that provides a framework for the development of specific measurable competencies. Validation of the general outcomes shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of graduates.

Only institutions legally authorized under applicable state law to provide degree programs beyond the secondary level and that are recognized by the appropriate regional and/or national accrediting agency are considered for accreditation. Evidence must exist that the programs are understood and accepted by the university/college community, and the business/industry community.

Standard 4 - Program Competency Identification & Validation: Measurable competencies shall be identified, assessed and validated for each program/option. These competencies must closely relate to the general outcomes established for the program/option and validation shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of program graduates.

The Pillars are applicable to both technical manufacturing and to manufacturing management curricula. Specifics regarding the 4 Pillars of Manufacturing are available at the following URL: www.C2015.com

Appropriate laboratory activities shall be included in the program/option and a reasonable balance shall be maintained between the practical application of "how" and the conceptual application of "why." Master's degree programs and/or options may not have formal laboratory activities, but must maintain a balance between the practical application of "how" and the conceptual application of "why."

There shall be evidence of appropriate sequencing of courses in each program/option to ensure that applications of mathematics, science, written and oral communications are covered in technical and management courses. Examples of graded student work and textbooks for each management and/or technical course shall be provided for the visiting team. Further, sequencing should ensure that advanced level courses build upon concepts covered in beginning level courses.

Standard 6 - Student Admission & Retention Standards: There shall be evidence showing that the quality of technology, management, and applied engineering students is comparable to the quality of students enrolled in other majors at the institution. The standards for admission and retention of technology, management, and applied engineering students shall compare favorably with institutional standards. Sources of admission information may include test scores and grade rankings. Sources of retention information shall include general grade point averages of technology, management, and applied engineering students compared to programs in other institutional programs.

Standard 7 - Transfer Course Work: The institution shall have policies in place to ensure that coursework transferred to the program is evaluated and approved by program faculty.

Standard 8 - Student Enrollment: There shall be evidence of an adequate number of program majors to sustain the program, and to operate it efficiently and effectively. Program enrollment shall be tracked and verified.

Standard 9 - Administrative Support & Faculty Qualifications: There must be evidence of appropriate administrative support from the institution for the technology, management, and applied engineering program/option including appropriately qualified administrators, an adequate number of full time faculty members and budgets sufficient to support program/option goals. Full time faculty assigned to teach courses in the technology, management, and applied engineering program/option must be appropriately qualified. Faculty qualifications shall include emphasis upon the extent, currency and pertinence of: (a) academic preparation; (b) industrial professional experience (such as technical supervision and management); (c) applied industrial experience (such as applied applications); (d) membership and participation in appropriate technology, management, and applied engineering professional organizations; and (e) scholarly activities. The following minimum qualifications for full time faculty are required (except in unusual circumstances which must be individually justified):

A. Associate Degree: The minimum academic qualifications for a regular full-time faculty member is expected to be an earned bachelor's degree in a discipline, or in certain cases for documented reasons, an associate's degree plus professional certification/licensure closely related to the faculty member's instructional assignments.

B. Bachelor's Degree: The minimum academic qualifications for tenure track, or full time faculty members shall be an earned graduate degree in a discipline closely related to the instructional assignment. A minimum of fifty percent of the tenure track, or full-time, faculty members assigned to teach in the program of study content area(s) shall have an earned doctorate or other appropriately earned terminal degree as defined by the institution. Exceptions may be

Standard 16 - Employer Satisfaction with Job Performance: Employer satisfaction with the job performance of graduates shall be tracked on a regular basis (two to five years) including employer attitudes related to the importance of the specific competencies identified for the program. Summary data shall be available showing employer satisfaction with the job performance of graduates.

Standard 17 - Graduate Success in Advanced Program: If a goal of the program/option is to prepare students for advanced studies, then the success in the advanced study programs shall be tracked and confirmed. Summary data shall be available showing success in advanced programs.


Standard 18 - Student Success in Passing Certification Exams: If a goal of the program/option is to prepare students to pass certification examinations, then the success in passing these examinations shall be tracked and confirmed. Summary data shall be available showing success in passing certification exams.


Standard 19 - Advisory Committee Approval of Overall Program: An industrial advisory committee shall exist for each program/option and shall participate in general outcome and competency validation and the evaluation of overall program success. If more than one program of study or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained. Policies for the advisory committee shall exist that include: (a) criteria for member selection; (b) procedures for selecting members; (c) length of member appointment; (d) committee responsibilities; (e) frequency of meetings (at least one per year); and (f) methods of conducting business. A roster of advisory committee members and minutes of advisory committee meetings shall be made available to the visiting team.

Standard 20 - Outcome Measures Used to Improve Program: Evidence shall be presented showing how multiple outcome measures (for example: Graduate Satisfaction with Program/Option, Employment of Graduates, Job Advancement of Graduates, Employer Satisfaction with Job Performance, Graduate Success in Advanced Programs, Student Success in Passing Certification Exams, and Advisory Committee Approval of Program) have been used to improve the overall program/option (please use the attached table B in addressing this standard). Evidence that program stakeholders participate in this process must be demonstrated.

Standard 21 - Program Responsibility to Provide Information to the Public: The program must make available to the public via website, information on student performance and achievement as may be determined appropriate by the institution or the program. Information on student performance and achievement may also be provided in hard-copy forms as may be determined appropriate by the institution or the program. Sources of potential information include, but are not limited to: student graduation rates from the program; average starting salaries; mean grade point averages; promotions achieved; time to secure first position; average years to complete the degree; and student awards/scholarships received. Institutions are required to provide the hyperlink of where this information located.

Table C-1 Associates' Degree Foundation Semester Hour Requirements Table
 (complete a separate table for each degree/option)

 Requirements	School/Program Degree Requirements Course prefix, number and title	Semester Hours
Communications 6-9 Semester Hours		
	Total	
Mathematics 3-12 Semester Hours		
	Total	
Physical Sciences* 3-12 Semester Hours *Life Sciences may be appropriate for selected programs of study		
	Total	
Management and/or Technical 29-45 Semester Hours		
	Total	
	General Electives 0 – 12 Semester Hours	
Total		
ATMAE Minimum Total 60 Semester Hours	Degree Total	

 Requirements (continued)	(continued) School/Program Degree Requirements Course prefix, number and title	(continued) Semester Hours
Technical 24-36		
General Electives 0-18 Semester Hours	Total	
ATMAE Minimum Total 120 Semester Hours	Degree Total	

C. On-Site Visitation Procedures and Guidelines

Advance Preparation

- A. Accreditation Handbook(s) sent by Association of Technology, Management, and Applied Engineering (at least three months before visit) to the program contact.
- B. Selection and approval of team members and team chair.
- C. Completed Self-Study Report and departmental and institutional material (including a catalog for general information) to be distributed to visiting team members one month in advance of visit.
- C. Faculty assembles course outlines, sample student assignments, textbooks, and examinations.
- D. The team chair and institutional contact person cooperatively develop the on-site schedule including facility tours, interviews, and writing time.
- E. Team Chair communicates with ATMAE travel agency and with team members to establish arrival time tables.
- G. The Team chair, in cooperation with team members, make assignments of final report topics to each team member.

Initial Team Meeting

The team will meet with the institutional contact and program head early in the evening prior to the first day to:

- A. Review objectives of accreditation.
- B. Briefly review accreditation materials and materials provided by the institution.
- C. Establish time schedules (appointments and class observations).
- D. Discuss the "general information" of the self-study report with institutional contact person.
- E. Interview program head.

Resource Room Recommended Items

- A. Course Syllabi/outlines and textbooks
- B. Faculty Vitas
- C. Graded student work including tests, reports, projects
- D. List of graduates for the last 2 years
- E. List of advisory committee members with contact information
- F. Available computers and printers with internet access
- G. Telephone for contacting advisory members and/or Program graduates
- H. Documentation of student follow-up survey.
- I. Documentation of outcomes assessment.

Note 1: This list is not all inclusive.

Note 2: It is preferable that the Self-Study report and supporting documentation be provided to the Team chair and Team members electronically.

Please contact your assigned Team Chair for any additional required items or clarification of requirements in the Team Work Room.

Post-Visit Actions

- A. Within two weeks, the team chair edits the Team Report and sends copies to team members for review, correction, and return mailing within one week of receipt of the report (The report may be provided to each Team Member electronically).
- B. The visiting team chair sends a draft copy (marked "Draft Copy") of the Visiting Team Report to the institutional contact person for review and correction of factual errors. The institutional representative must respond within two weeks of receipt of the "Draft Copy." (The report may be provided to the institutional contact electronically)
- C. The team chair completes a final report and mails it to the Head of the Institution, Head of the Program, Institutional Contact Person and the Association of Technology, Management, and Applied Engineering Executive Director within 45 days of the accreditation visit. Copies are also sent to each team member. A cover letter addressed to the institution's head will indicate how the institution may officially respond to the factual accuracy of the Report and will include appeal procedures.
- D. The Report is reviewed by the Association of Technology, Management, and Applied Engineering Board of Accreditation at its annual meeting. The institution's official reactions to the Team Report will be considered at this time. If the institution wishes the Board to review brief written materials related to the factual accuracy of the visiting team report, such materials must be sent to the Association of Technology, Management, and Applied Engineering Executive Director 45 days prior to the Board of Accreditation meeting.
- E. The Association of Technology, Management, and Applied Engineering Board of Accreditation takes action as it deems appropriate according to the accreditation guidelines.

The On-Site Visit

- A. Date of the Visit
- B. The Visiting Team
- C. On-Site Visit Agenda
- D. Current Accreditation Status of Program(s)

General Information

- A. The Institution (Briefly summarize institutional information)
- B. Administrative Unit(s) Information (Briefly summarize administrative unit information)

Compliance with Standards

The information in this section shall describe how each program and option complies with, or fails to comply with each standard. Each standard shall be listed by number and typed in bold or underlined and shall be followed by a declarative statement indicating the team’s evaluation of how a program or option complies with the standard. Note: If a Program or Option meets this ATMAE Standard, and it is in Compliance, you need not provide any narrative.

An example of the appropriate format is shown below:

14 - Employment of Graduates: Placement, job titles, and salaries of graduates shall be tracked on a regular basis (two to five years). The jobs held by graduates shall be consistent with program/option goals. Summary data shall be available for the employment of graduates.

Program Name - Option Name

We survey our student graduates every three years to determine placement and salaries of our graduates. We have found that there is a 90% placement rate for our students in jobs consistent with program goals. The survey data is available in Appendix x.

Program Name - Option Name (Provide narrative for this Program/Option if different from the previous narrative – if it is the same then state that “This Program/Option same as previous)

All Program(s)/Option(s) Same: Compliance Partial Compliance Non-Compliance

Program/Option: Name Compliance Partial Compliance Non-Compliance

Program/Option: Name Compliance Partial Compliance Non-Compliance

Program/Option: Name Compliance Partial Compliance Non-Compliance

C. Conditions:

Accreditation with a Report in Two Years: A written progress report is required in two years which details the corrective action taken to meet standards.

Accreditation with an On-Site Visit and Report in Two Years: A written progress report by the institution and an on-site visit by one of the initial visiting team members is required in two years.

Non-Accreditation: Denial of accreditation occurs when a program does not substantially comply with standards. If a program receives Non-Accreditation status, the application for reaccreditation will be considered as an initial application and the maximum period of accreditation granted will be four years.

Reports on Standards: The report shall cover each program and the narrative on each standard that is in partial or non-compliance and shall include the following:

- A. Standard: the standard shall be listed by number and typed in bold or underlined
- B. Visiting Team Report: the complete narrative used in the visiting team report to describe the status at the time of the visit shall be included followed by the rating given by the Board of Accreditation (Partial Compliance or Non-Compliance)
- C. Current Program Status: a narrative is included describing the current status of the program as it relates to the standard.

The format for reports on stands would appear like the example below:

5 - Program Competency Identification & Validation: Measurable competencies shall be identified, assessed and validated for each program/option. These competencies must closely relate to the general outcomes established for the program/option and validation shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of program graduates.

Industrial Technology - Electronic Option

Visiting Team Report: Student-learning outcomes have been mapped to the appropriate course using appropriate and identifiable measures; but they have not been tied back/mapped to the outcomes of the college. The program has developed a plan to accomplish the mapping, but at the time of the visit, the plan had not been implemented. The final mapping is scheduled for completion by mid-year 2013. (Board of Accreditation Rating – Partial Compliance)

Current Program Status: The Department has identified specific course learning outcomes that support the program outcomes. These program outcomes have been mapped to the college's core values. Supporting documents for can be found in the following appendices:

- APPENDIX A – Program Mapping
- APPENDIX B – Strategic Plan 2013 - 2017

Industrial Technology - Manufacturing Option

Visiting Team Report: Student-learning outcomes have been mapped to the appropriate course using appropriate and identifiable measures; but they have not been tied back/mapped to the outcomes of the college. The program has developed a plan to accomplish the mapping, but at the time of the visit, the plan had not been implemented. The final mapping is scheduled for completion by mid-year 2013. (Board of Accreditation Rating – Partial Compliance)

Current Program Status: The Department has identified specific course learning outcomes that support the program outcomes. These program outcomes have been mapped to the college's core values. Supporting documents for can be found in the following appendices:

- APPENDIX A – Program Mapping
- APPENDIX B – Strategic Plan 2013 - 2017

Request for Initial Visit, Reaccreditation Visit or Report & Visit

Please Type Information

1. **Institution** _____
Institution Address _____

2. **Head of Institution** _____ Title _____
Telephone _____ Fax _____

3. **Head of Program** _____ Title _____
Telephone _____ Fax _____

4. **Contact Person** _____ Title _____
Mailing Address _____
Telephone _____ Fax _____
Email Address _____

5. **Type of Visit Requested (All Visits starting in 2013 will use the Outcomes Assessment Model):**

Initial Accreditation Reaccreditation 2-Year Follow-Up

6. **Program Level:** Associate Baccalaureate Master

7. **List Technology Program(s) (including options, concentrations, and specializations) to be considered** (Note: All options, specializations, and concentrations in a degree program MUST be reviewed. Except as noted in PA.2 Program Definition: of the Outcomes Assessment Model).

Degree	Program Name	Option, Concentration, or Specialization

(Attach additional sheet if necessary)

8. **Billing Address:** _____

9. **Regional Accrediting Agency:** _____

10. **Proposed Dates for Visit** (Note: a minimum of two full days are required for the visit plus a travel day).

First Choice: _____ Second Choice: _____

11. **Recommended Team Member Lodging** (include name, address, and telephone number).

If your school has a discounted hotel rate, may ATMAE use it during the visit: Yes No

12. **Authorized Signatures:**

Institution Contact Person: _____ Date: _____

Head of Program: _____ Date: _____

Head of Institution: _____ Date: _____

Please return this form to ATMAE Accreditation Director, 275 N. York St., Suite 401, Elmhurst, IL 60126

Phone (630) 433-4514 Fax (630) 563-9181

Kelly@atmae.org

SUBMIT FORM

General Fee Structure & Billing Policies

Institutions pay an initial accreditation visit fee prior to the team visit for accreditation of new degree programs.

Institutions with accredited programs pay an annual accreditation fee.

Accreditation fees are due thirty (30 days) after receipt of an invoice, unless otherwise noted.

Accreditation will be automatically withdrawn from institutions with fees six (6) months in arrears. *(See Policies 3.6)*

Accreditation Visit Fees

Initial Accreditation Visit Fee

Fee: \$5,000 for visits in 2016 and 2017

Billing: Accreditation Visit Fees are billed after visit details are approved by the institutional representatives and by February 1 of each year. The Accreditation Visit Fee for a visit approved after February 1 will be billed immediately after the visit is approved.

Due: The invoice for the Accreditation Visit Fee is due and payable 30 days prior to the visit. *(See Policies 3.6.1)*

Accreditation Visits (Fee for Extra Team Members / Extra Days on Campus)

Fee: Based on a proportionate share of actual expenses.

Fee Calculation: If the Accreditation Personnel Committee determines that more than three team members are required for any visit, or that more than three (3) on-campus days are required for the visit, or if a follow-up on-site visit is required, then the institution will be billed for actual travel costs for the extra team member(s) or additional visit days, or for the follow-up visit. "Actual travel costs" for each extra team member will be determined by dividing the total travel costs by the number of team members. Actual travel costs for each additional visit day will be determined by dividing the total travel costs by the number of on-campus days required for the visit.

Billing: The fee for extra team members / extra days on campus will be billed immediately upon calculation of all direct expenses related to the visit.

Due: The invoice for the Extra Team members / Extra Days on Campus Fee is due and payable 30 days after receipt. *(See Policies 3.6.3)*

Withdrawal of Request for Accreditation – Incurred Expense Fee

Fee: All direct expenses incurred by ATMAE prior to receipt of the withdrawal request. This may include but is not limited to airfares and other visiting team travel expenses related to a scheduled visit that are incurred prior to the withdrawal request.

Billing: The fee for expenses of a withdrawn request for accreditation will be billed immediately upon calculation of all direct expenses related to the cancelled visit.

Due: The invoice for the Withdrawal of Request for Accreditation Visit Fee is due and payable 30 days after receipt. *(See Policies 3.2)*

Subsequent Reaccreditation Visit Fee (Team visits in visit years after initial team visit)

Fee: \$0 – There is no reaccreditation visit fee; the visit costs for reaccreditation visits are covered by ATMAE and funded from general revenues of the accreditation program. *(See Policies 3.6.1)*

Follow-Up Visit Fee (where Accreditation Board requires a follow-up visit)

Fee: Actual Visit Expenses of the follow-up visitor and ATMAE Administrative Fee of \$200.

Billing: ATMAE invoices the institution for the follow-up visit fee immediately after the visitor provides ATMAE with actual visit expense information.

Policy: When an institution has degree programs accredited at the fall accreditation hearings (late October to mid-November), they will be invoiced their first annual fee of \$2,650 on December 1 for the period of November of that year through October of the next year. On March 1 of the next year, they will be invoiced the next annual fee of \$2,650 for the period of November of the next year through October of the following year.

Example:

- An institution has degree programs accredited at the 2016 Accreditation hearings
- The institution will be invoiced \$2,650 on December 1, 2016 for the accreditation period of November 2015 through October 2016
- The institution will be invoiced \$2,650 on March 1, 2017 for the accreditation period November 2017 through October 2018.

Annual Accreditation Fee - Late Payment Fee

Policy: For Annual Fee Invoices issued on or about March 1, a 1.5% late fee applies as of August 10. ATMAE Accreditation Annual Fee invoices are issued on or about March 1 that are unpaid and with respect to which the invoice payment has not been received at the ATMAE Office, or via ACH deposit to the ATMAE accounts receivable bank account, as of the issuance of ATMAE customer statements on August 10 of each year will result in inclusion of a 1.5% per month late payment fee (compounded monthly.)

Detail: ATMAE Accreditation Annual Fee invoices are issued on or about March 1 for the accreditation service year starting the subsequent November 1. Fees are due and payable upon receipt. ATMAE understands that fiscal year policies often delay approval and release of payment until July 1.

- If payment will be made after June 30, please begin the internal payment process by July 1 to ensure payment by August 1 without incurring a late fee.
- If your payment is expected to be delayed until after August 1 due to extenuating circumstances, please contact the ATMAE office at 630-433-4514 or at info@atmae.org.

Consultant Fee & Expenses

Fee: \$500 per day plus actual travel expenses for consultants. The consultant fee may include one additional day for writing the consultant report for every day spent on the campus.

Billing: ATMAE invoices the institution after the consultant provides ATMAE with expense information and reports the total consultant days for the consult visit.

Due: The invoice for Consultant Fee & Expenses is due and payable 30 days after receipt. (See *Policies 2.5.6*)

Advanced

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CCRI A.S. Manufacturing Technology ETMA ^{AM}

CERTIFICATE COURSES		
ETMD	ETMM	ETMQ
Design & Rapid Prototyping	Manufacturing Machining	Automation & Quality
Credits	Credits	Credits

Courses		Credits	Lec hrs.	Lab hrs
A.S. ETMA DEGREE SUMMARY				
General Education		22	19	4
Required Courses and Internship		29	14	21
Electives Courses (Average hrs)		12	1.6	2.8
A.S. Degree Totals		63	34.6	27.8
A.S. Contact Hour Totals (15-week semesters)			775	1135
GEN EDS				
ENGL 1010 Composition I	ENGL 1010	3	3	
Applied Technical Math I	MATH 1750	3	3	
Applied Technical Math II	MATH 1760	3	3	
Physics for technology	PHYS 1050	4	2	2
Intro. to Renewable Energy	PHYS 1070	3	2	2
Psychology in the WorkPlace	PSYC 1050	3	3	
Oral Communications I	COMM 1100	3	3	
Gen Ed Totals		22	19	4
GenEd Contact Hour Totals (15-week semesters)			285	60
A.S. DEGREE REQUIRED COURSES				
Engineering Graphics (Solidworks)	ENGR 1030	3	1	4
Blue Print Reading and Machine Handbook	ETCN 1100	3	2	2
Intro to Manufacturing Process	ETME 1020	3	1	4
*Advanced Solid Modeling	ENGT 2090	3	1	3
CNC Manufacturing I	ETCN 1300	3	1	4
Precision Measurement & Geometric Dim. Tol.	ETCN 1200	3	2	2
Introduction to Digital systems (PLCs)	ETEE 1800	3	2	2
Introduction to Robotics and Control	ETME 1010	3	2	2
** Lean Manufacturing	ETCN 2250	1	1	2
**Industry and OSHA-10 Seminars	ETCN 2400	1		4
CNC Manufacturing Capstone (140 hr Internship)	ETCN 2500	3	1	140
A.S. Degree Require Totals		29	14	169
A.S. Degree Require Contact Hour Totals			210	575
ELECTIVES -12 Credits Minimum		12		
Introduction to AutoCAD	ENGT 1060	2	1	3
** Mechanical Industrial Design	ETCN 1000	3	2	2
3D Modeling and Prototyping	ETCN 2300	3	2	2
**Advanced Machining Skills	ETCN 2000	3	1	4
Computer Aided Manufacturing (Master Cam)	ETCN 2100	3	1	4
CNC Manufacturing II	ETCN 2200	3	1	4
**Automated Machining Technology	ETCN 2350	3	2	2
Automation Systems	ETME 2150	3	2	2
**Manufacturing Quality Control	ETCN 2250	2	2	2
Minimum Elective Average Totals		12	18.7	33.3
Average Elective Total Hours			280	500

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Certificate –Manufacturing Automation and Quality

MANUFACTURING AUTOMATION AND QUALITY - ETMQ		Prerequisite
Precision Measurement & Geometric Dim. Tol.	ETCN 1200	-
Introduction to Digital systems (PLCs)	ETEE 1800	-
**Automated Machining Technology	ETCN 2350	ETME 1020
Introduction to Robotics and Control	ETME 1010	ETEE 1800
Automation Systems	ETME 2150	ETME 1010
**Manufacturing Quality Control	ETCN 2250	ETME 2150
** Lean Manufacturing	ETCN 2250	ETME 2150
**Industry and OSHA-10 Seminars	ETCN 2400	-

Description Overview

This certificate will allow students to measure the quality of manufactured products and develop efficient manufacturing processes. Students will gain experience with a variety of advance manufacturing technologies, including wire EDM, plasma cutting 3D printing and laser cutting. The student will receive an OSHA-10 certification and the opportunity to attend four industry presentations. The certificate can be completed one year part-time and a summer session and semester full time. All credits can be applied to the Manufacturing Technology A.S. degree. 19 credits

Learning Outcomes

1. Students will be able to setup and operate wire EDM, plasma and laser cutting machines
2. Students will be able to program PLC's
3. Students will be develop the knowledge of basic robot systems and their programming
4. Students will learn the basic s of modern automated manufacturing
5. Students will be able apply LEAN principles to manufacturing
6. Student will be able to apply quality control principles to manufacturing
7. Students will be able to perform precision measurement of manufactured units
8. Student will receive an OSHA-10 certification
9. Students will learn from industry representatives real-life manufacturing issues

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Certificate –Manufacturing Machining

MANUFACTURING MACHINING -ETMM		Prerequisite
Intro to Manufacturing Process	ETME 1020	-
Blue Print Reading and Machine Handbook	ETCN 1100	-
**Advanced Machining Skills	ETCN 2000	ETME 1020
CNC Manufacturing I	ETCN 1300	ETME 1020
Computer Aided Manufacturing (Master Cam)	ETCN 2100	ETCN 1300
CNC Manufacturing II	ETCN 2200	ETCN 2100
**Industry and OSHA-10 Seminars	ETCN 2400	-

Description Overview

This certificate will allow students to develop the knowledge and skills for advanced manufacturing machining. The program will give students extensive hands-on experience with manual, conversational and CNC machines. An emphasis will be place on safe and efficient setup and operation of industrial grad machining equipment. Overall, the program will prepare students to read blueprints, select the appropriate machining technology and produce a unit, meeting the design specifications. The certificate can be completed one year part-time and a summer session and semester full time. All credits can be applied to the Manufacturing Technology A.S. degree. 19 credits

Learning Outcomes

1. Students will develop safe setup and operation of traditional and CNC machines
2. Students will to operate lathes, milling and grinders
3. Students will develop skills to operate CNC Lathes and mills
4. Students will be able read an produce industrial drawings and blueprints
5. Students will learn to efficiently use the Machine Handbook
6. Students will be able to read blueprints and machine the parts
7. Student will be able operate machinery in a conversational mode
8. Student will learn to prepare files for CNC machining with G-coding
9. Students will be able to use MasterCam to prepare files for CNC machining

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Certificate –Design & Rapid Prototyping

DESIGN & RAPID PROTOTYPING -ETMD		Prerequisite
Engineering Graphics (Solidworks)	ENGR 1030	-
Blue Print Reading and Machine Handbook	ETCN 1100	-
Intro to Manufacturing Process	ETME 1020	-
Introduction to AutoCAD	ENGT 1060	-
*Advanced Solid Modeling	ENGT 2090	ENGR 1030
** Mechanical Industrial Design	ETCN 1000	ENGR 1030, ETME 1020
3D Modeling and Prototyping	ETCN 2300	ENGT 2090

Description Overview

This certificate will allow students to develop the knowledge and skills for preparing the files and drawings for a variety of mechanical devices and components. The student will develop skills with contemporary CAD software to produce files suitable for machining and 3D printing. The emphasis will be placed on designing for advanced manufacturing technology, rapid prototyping using 3D printers and mechanical simulation. The certificate can be completed one year part-time and a summer session and semester full time. All credits can be applied to the Manufacturing Technology A.S. degree. 19 credits

Learning Outcomes

1. Students will develop advanced skills with SolidWorks CAD software
2. Students will develop basic skills with AutoCAD
3. Students will the basic skills and knowledge of traditional machining processes
4. Students will be able read and produce industrial drawings and blueprints
5. Students will learn to efficiently use the Machine Handbook
6. Students will the fundamental skills and knowledge of mechanical industrial design
7. Student will learn to simulate mechanical designs in SolidWorks
8. Students will how to design for 3D printing and rapid prototyping.

ENGINEERING SYSTEMS TECHNOLOGY ET157 - SUBVEINING PROGRAM MAP

* Introduces the concept
R = Reinforces or contributes additional information
E = Emphasizes (assumes level of mastery)

Program Student Learning Outcomes
Students will be able to:

1. Analyze technical problems, propose solutions and document with written and oral reports.
2. Employ technology for communications, data collection, analysis, simulation and control.
3. Use basic project management skills, project team work and ethical behavior.
4. Use analyze and troubleshoot basics of electrical and mechanical system components.
5. Use the basic manufacturing methods, measurements, automation and quality control.
6. Apply electrical technology design, analysis and troubleshooting principles.
7. Analyze passive electrical circuits and active electronic circuits.
8. Employ electrical components and control technology for overall system performance.
9. Code PLCs and micro controllers for networking and system control applications.
10. Apply engineering design and project management principles.
11. Use SolidWorks CAM and apply it to engineering graphics and mechanical design.
12. Apply the basics of engineering materials, structures and to mechanical design.
13. Code PLCs and micro controllers for networking and system control applications.

Outcome	General Education Courses										Core Courses										ET157 Track Courses																				
	ENGL 1010	MATH 1780	MATH 1780	PHYS 1050	PHYS 1070	SSE	SSE	ETEE 1050	ETME 1070	ETME 1070	ETME 1800	ETME 2150	INST 3020	CSCO 2850	ETEE 1100	ETEE 1500	ETEE 1120	ETEE 2290	ETEK 1500	ETEE 2500	ETUT 1055	ETUT 1120	ETUT 2500	ENGR 1020	ENGR 1090	ETME 1500	ETME 1510	ETME 2930	ETME 2500	ETCN 1100	ETCN 1200	ETCN 1300	ENET 2090	ETCN 2100	ETCN 2200	ETCN 2300	ETCN 2300				
1																																									
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20																																									
21																																									

ENGINEERING SYSTEMS TECHNOLOGY (ESTS) PROGRAM MAP

"I" = Introduces the concept
 "R" = Reinforces or contributes additional information
 "E" = Emphasis (assumes level of mastery)
 The numeric refers to notes

Program Student Learning Outcomes

GENERAL EDUCATION OUTCOMES	GENERAL EDUCATION				ESTS CORE							ELECTRICAL TRACK				MECHANICAL TRACK			ENERGY TRACK													
	ENGL 1010	MATH 1750	MATH 1760	PHYS 1050	PHYS 1070	SSE	SSE	ENGR 1020	ENGR 1030	ETEE 1050	EETME 1020	EETME 1010	INST 1010	ETEE 1800	EETME 2150	ETEE 2980	ETEE 1100	ETEE 1500	ETEE 1120	ETEE 2990	ETEE 2500	EETME 1500	EETME 1510	EETME 2990	EETME 2500	ETUT 1060	ETUT 1160	ETUT 2500				
Engineering design process																																
Engineering vs technology/Excel/Word/PowerPoint																																
Project management																																
Portfolio																																
Lab report, resume, project report																																
ENGR 1030 Engineering Graphics																																
Descriptive geometry																																
Intro AutoCAD																																
Intro SolidWorks																																
Ortho graphic projection																																
Auxiliary views																																
Sections																																
Intersections																																
Developments																																
Removed sections																																
ELECTRO-MECHANICAL OUTCOMES																																
Basic electricity																																
Ohms law, DC, AC																																
Intro to passive electrical compon.																																
Introduction to active components																																
Electromagnets																																
Electromagnetic components																																
ROTARY ACTUATORS																																
STEPPER MOTORS																																
SERVO MOTORS																																
MOTOR CONTROLLERS																																
AC/DC MOTORS																																
RESOLVERS																																
OPEN / CLOSED LOOP SYSTEMS																																
SWITCHES WESH AND SOLID STATE																																
OPERATIONAL AMPLIFIERS																																
ELECTRICAL ELECTIVE OUTCOMES																																
CIRCUIT ANALYSIS																																
ACTIVE DEVICES																																
POWER ELECTRONICS																																
POWER SYSTEMS																																
WIRELESS DEVICES																																
COMPUTER NETWORKING																																
COMPUTER PROGRAMMING																																
C-PROGRAMMING																																

ENGINEERING SYSTEMS TECHNOLOGY

(ESTS) PROGRAM MAP

* = Introduces the concept
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 The numeric refers to notes

Program Student Learning Outcomes

Course	GENERAL EDUCATION			ESTS CORE										ELECTRICAL TRACK				MECHANICAL TRACK				ENERGY TRACK	
	ENGL	MATH	PHYS	ENGR	ENGR	ETEE	ETME	ETME	INST	ETEE	ETME	ETEE	ETEE	ETEE	ETEE	ETME	ETME	ETME	ETME	ETUT	ETUT		
Automation Systems																							
COM/MERCIAL ROBOTS																							
END OF ARM TOOLS																							
BOWL FEEDER SYSTEMS																							
CONVEYOR SYSTEMS																							
PICK AND PLACE UNITS																							
TRANSFER SYSTEMS																							
SENSORS																							
VISION SYSTEMS																							
PLCS																							
Hydraulic / Pneumatic Systems																							
GAGES																							
FLOW METERS																							
PUMPS																							
VALVES																							
CYLINDERS																							
MOTORS HYDRAULIC / PNEUMATIC																							
COMPRESSORS																							
POWER PACKS																							
FITTINGS / HOSE / TUBING																							
MATERIALS AND PROCESSES																							
STEEL ALLOY AND CARBON																							
NON FERROS																							
PLASTICS																							
MOLDING																							
METAL CUTTING																							
EXTRUDING																							
FORGING																							
WELDING																							
CASTINGS																							
DOCUMENTATION INTERPRETATION																							
BLUE PRINT READING																							
SCHEMATIC READING																							
GEOMETRIC TOLERENCING																							
DIMENSIONING																							
DOCUMENTATION MANAGEMENT																							
BILL OF MATERIALS																							
REVISION AND CHANGES																							
WORKING DRAWINGS																							
MECHANICAL SYSTEMS																							
CLUTCHES / BRAKES																							

ENGINEERING SYSTEMS TECHNOLOGY (EST) PROGRAM MAP

I = Introduces the concept
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 The numeric refers to codes

Program Student Learning Outcomes

COURSE	GENERAL EDUCATION		EST CORE		ELECTRICAL TRACK		MECHANICAL TRACK		ENERGY TRACK	
	ENGL	MATH	ETEE	ETME	ETEE	ETME	ETME	ETME	ETUT	ETUT
ENGL 1010	ENGL 1010	ENGL 1010								
	MATH 1750	MATH 1750								
	MATH 1760	MATH 1760								
	PHYS 1050	PHYS 1050								
	PHYS 1070	PHYS 1070								
	SSE	SSE								
	SSE	SSE								
	ENGR 1020	ENGR 1020								
	ENGR 1030	ENGR 1030								
	ETEE 1050	ETEE 1050								
	ETME 1020	ETME 1020								
	ETME 1010	ETME 1010								
	INST 1010	INST 1010								
	ETEE 1600	ETEE 1600								
	ETME 2150	ETME 2150								
	ETEE 2360	ETEE 2360								
	ETEE 1100	ETEE 1100								
	ETEE 1500	ETEE 1500								
	ETEE 1120	ETEE 1120								
	ETEE 2390	ETEE 2390								
	ETEE 2500	ETEE 2500								
	ETME 1500	ETME 1500								
	ETME 1510	ETME 1510								
	ETME 2930	ETME 2930								
	ETME 2500	ETME 2500								
	ETUT 1060	ETUT 1060								
	ETUT 1160	ETUT 1160								
	ETUT 2500	ETUT 2500								

Sabbagh, Thomas

From: Bernardini, Jerry
Sent: Tuesday, September 29, 2015 2:22 PM
To: Sabbagh, Thomas; Woodberry, Peter; Livingston, Cathy; Arruda, Paula
Cc: RE: Manufacturing course outcomes
Subject: 0-Prerequisites for FTCI and FTCA-2015Fall.xlsx
Attachments:

Hi Tom,
The courses listed are not just for people who might attend the Boot Camp. They are all course we consider to be our Advanced Manufacturing program. The Boot Camp outcomes is list because it was envisioned to be a screen course for the State Apprenticeship program. Below are all the program learning outcome submitted to the Curriculum Committee. At that meeting the final course codes were not specified.
Also, attached are the manufacturing course prerequisite variation worksheet.

Jerry Bernardini
Professor-Chairperson
Engineering and technology
jbernardini@ccri.edu
401.825.1189

Curriculum Map

Curriculum Map

PROGRAM MAP		Program Student Learning Outcomes									
INTRODUCTION TO CNC MANUFACTURING		1	2	3	4	5	6	7	8	9	10
		Ability to qualitatively analyze technical problems, and produce a solutions.	Ability to visualize three dimensional objects.	Ability to model three dimensional objects	Ability to read blueprints and understand dimensioning	Ability to interpret mechanical dimensioning and tolerances	Understand the basics of manufacturing.	Skill to machine basic physical parts from various materials	Ability select proper tools, speeds and feeds for shaping materials	Ability to apply "G" and "M" coding to CNC programming	Ability to perform precision mechanical measurements
Engineering Graphics	ENGR 1090	1									
Solid Modeling (Solidworks)	ENGT 1090		R	I	I						
Advanced Solid Modeling	ENGT 2090		E	E	R						
BluePrint Read / Mach. Handbook	ENCM 11xx				R						
Precision Meas/Geo. Tolerancing	ETCM 12xx				R						
Intro to Manufacturing Process	ETME 1020				R						
CNC Manufacturing I	ETCM 13xx				R						

PROGRAM MAP
 "I" = Introduces the concept
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 The numeric refers to notes

CNC MANUFACTURING AND 3D MODELING

PROGRAM MAP

"I" = Introduces the concept
 "R" = Reinforces or contributes additional information
 "E" = Emphasis (assumes level of mastery)
 The numeric refers to notes

Program Student Learning Outcomes

ETCA Courses	1	2	3	4	5	6	7	8	9	10
Introduction to Digital systems (PLCs)	I	I	I						I	
Computer Aided Manufacturing (Master Cam)	R	R	R	I	I	I	I	I	R	
CNC Manufacturing II	E	R	R	R	R	R	R	R	R	I
3D Modeling and Prototyping	E	E				E	E		R	R
Internship/Project (150 hours)	E	E	R	E				E	R	E
ETFE 1800										
ETCM 21xx										
ETCM 22xx										
ETCM 23xx										
ETCM 25xx										
Ability to qualitatively analyze technical problems, and produce a solutions.										
Ability to program PLC devices										
Ability to utilize Master Cam for CNC programming										
Ability to plan and execute CNC projects										
Ability to translate Solidwork files to 3D printing										
Ability to plan and execute a rapid prototype project										
Ability to apply CNC skills to an internship experience										
Ability to troubleshoot a manufacturing process										
Ability to produce a complete internship report										

From: Sabbagh, Thomas
 Sent: Tuesday, September 29, 2015 1:30 PM
 To: Bernardini, Jerry; Woodberry, Peter

Livingston, Cathy
Subject: RE: Manufacturing course outcomes

Jerry,
Actually, these are **course** outcomes for a specific program offered for the boot camp. I would need program learning outcomes for the ETCT program similar to the ones listed on the other colleges I left with you and Peter.

eg: Manchester Community College

• Program Learning Outcomes

Students who graduate from this program will be able to:

- Define the automated manufacturing processes
- Illustrate the flow of materials and resources within the manufacturing cycle
- Demonstrate the ability to manipulate the system to create finished product
- Program the material handling equipment to identify product to the system
- Provide analysis to improve the process
- Be able to make modifications to the system
- Develop the system to optimize production

You don't have to re-create the wheel and could adapt/adjust/borrow from others if they fit the purpose of the program.

Thanks
Tom

From: Bernardini, Jerry
Sent: Tuesday, September 29, 2015 1:17 PM
To: Sabbagh, Thomas
Subject: RE: Manufacturing course outcomes

Hi Tom,
Attached are the course outcomes present to the Rhode Island Advanced Manufacturing Apprenticeship advisor board.
This was also submitted

Jerry Bernardini
Professor-Chairperson
Engineering and technology
jbernardini@ccri.edu
401.825.1189

From: Sabbagh, Thomas
Sent: Tuesday, September 29, 2015 11:55 AM
To: Bernardini, Jerry
Cc: Woodberry, Peter
Subject:

Jerry,
Would you please send the list of the 70 employers with addresses to this email by the end of the day. Also, you mentioned that you have student learning outcomes by program (ETCT) not course outcomes; please send those along as well.

Lastly, when you get the name of the person who is able to join me at the ATMAE conference in Pittsburgh, 11/11-14, please send his/her name to me.

Thanks
Tom

Advance Manufacturing Course Prerequisites Variations, Sept 29, 2015

ETCI	Pamphlet	Catalog	Banner	Should Be	Needed Action
ENGR 1030	None	None	None	None	None
ETME 1020	None	ENGR 1030	ENGT 1090	None	Change ALL to SHOULD BE
ETCN 1100	None	ENGR 1030	None	None	Change ALL to SHOULD BE
ETCN 1200	None	ENGR 1030	None	ETCN 1100	Change ALL to SHOULD BE
ENGT 2090	ENGR 1030	ENGR 1030	None	ENGR 1030	Change ALL to SHOULD BE
ETCN 1300	ENGR 1030	ENGR 1030, Co- ETME 1020	ENGR 1030, ETME 1020 and ETCN 1100	Co-ENGR 1030, ETME 1020	Change ALL to SHOULD BE

ETCA	Pamphlet	Catalog	Banner	Should Be	Needed Action
ETEE 1800	MATH 0600	MATH 0600, 1420 or 1600	MATH 0500 (C or better)	MATH 0500 (C or better)	Change ALL to SHOULD BE
ETCN 2100	ETCN 1300	ETCN 1300	None	ETCN 1300	Change ALL to SHOULD BE
ETCN 2200	ETCN 1300	ETCN 1300; Co-ETCN 2100	ETCN 1300, ETCN 2100	ETCN 1300; Co-ETCN 2100	Change ALL to SHOULD BE
ETCN 2300	ENGR 1030	ENGR 1030, ENGT 2090, ETCN 1300	ENGR 1030, ENGT 2090, ETCN 1300	ENGR 1030	Change ALL to SHOULD BE
ETCN 2500	Co-ETCN 2100, Co-ETCN 2200	Co-ETCN 2100 and ETCN 2200	ETEE 1800, ETCN 2100, ETCN 2200 and ETCN 2300	Co-ETCN 2100, Co-ETCN 2200	Change ALL to SHOULD BE