



**METROPOLITAN STATE
COLLEGE of DENVER**

BYLAWS
Mechanical Engineering Technology
Industrial Advisory Board

26 February 2009

Article I - Name

The official name of this organization shall be the Mechanical Engineering Technology Industrial Advisory Board. (MET-IAB)

Article II - Mission

The Metro MET-IAB reviews the overall health and status of the Mechanical Engineering Technology (MET) program, advises the faculty on the general direction of the program, critically reviews the program strategic plans, advises the program on new faculty hire, identifies potential sources of supplemental funding, and last but not least, helps to develop, maintain and innovate the curricula.

Article III - Objective

1. Improve the direct applicability of the MET program to that of local industry.
2. Foster relations between Metro and Industry.
3. Serve the Metro MET program as required by ABET/Technology Accreditation Commission (TAC) who is the national accrediting body for the program.

ABET/TAC outlines how technology programs should be assessed and continually improved. This outline is embodied in nine criteria.

Criterion 1. Students

The program must evaluate student performance, advise students regarding curricular and career matters, and monitor student's progress to foster their success in achieving program outcomes, thereby enabling them as graduates to attain program objectives.

The program must have and enforce policies for the acceptance of transfer students and for the validation of courses taken for credit elsewhere. The program must also have and enforce procedures to assure that all students meet all program requirements.

The role of the board is to review and comment on the department's processes and procedures for advising and monitoring students progress and success with the program.

Criterion 2. Program Educational Objectives

Each program must have in place:

- a. published program educational objectives that are consistent with the mission of the institution and applicable

ABET criteria,

- b. a documented process by which the program educational objectives are determined and periodically evaluated based on the needs of constituencies served by the program, and
- c. an educational program, including a curriculum, that enables graduates to achieve the program educational objectives.

The role of the board is to review and comment on the department's educational objectives.

Criterion 3. Program Outcomes

Each program must demonstrate that graduates have:

- a. an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines
- b. an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology
- c. an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes
- d. an ability to apply creativity in the design of systems, components, or processes appropriate to program educational objectives
- e. an ability to function effectively on teams
- f. an ability to identify, analyze and solve technical problems
- g. an ability to communicate effectively
- h. a recognition of the need for, and an ability to engage in lifelong learning
- i. an ability to understand professional, ethical and social responsibilities
- j. a respect for diversity and a knowledge of contemporary professional, societal and global issues
- k. a commitment to quality, timeliness, and continuous improvement

The role of the board is to review and comment on the department's processes and procedures for assessing and evaluating program outcomes.

Criterion 4. Continuous Improvement

The program must use a documented process incorporating relevant data to regularly assess its program educational objectives and program outcome, and to evaluate the extent to which they are being met. The results of these evaluations of program educational objectives and program outcomes must be used to effect continuous improvement of the program through a documented plan.

The role of the board is to review and comment on the department's processes and procedures for continuous improvement.

Criterion 5. Curriculum

The program must provide an integrated educational experience that develops the ability of graduates to apply pertinent knowledge to solving problems in the engineering technology specialty. The orientation of the technical specialization must manifest itself through program educational objectives, faculty qualifications, program content, and business and industry guidance.

These criteria specify subject areas and minimum total credit hours essential to all engineering technology programs. The curriculum must appropriately and effectively develop these subject areas in support of program educational and institutional objectives.

Total Credits Baccalaureate programs must consist of a minimum of 124 semester hours or 186 quarter hours of

credit. Associate degree programs must consist of a minimum of 64 semester hours or 96 quarter hours of credit.

Communications The communications content must develop the ability of graduates to:

- a. plan, organize, prepare, and deliver effective technical reports in written, oral, and other formats appropriate to the discipline and goals of the program;
- b. incorporate communications skills throughout the technical content of the program;
- c. utilize the appropriate technical literature and use it as a principal means of staying current in their chosen technology;
- d. utilize the interpersonal skills required to work effectively in teams.

Mathematics The level and focus of the mathematics content must provide students with the skills to solve technical problems appropriate to the discipline and the program educational objectives. Algebra, trigonometry, and an introduction to mathematics above the level of algebra and trigonometry constitute the foundation mathematics for an associate degree program. Integral and differential calculus, or other appropriate mathematics above the level of algebra and trigonometry, constitutes the foundation mathematics for baccalaureate programs.

Physical and Natural Science The basic science content can include physics, chemistry, or life and earth sciences that support program educational objectives. This component must include laboratory experiences which develop expertise in experimentation, observation, measurement, and documentation.

Social Sciences and Humanities The social sciences and humanities content must support technical education by broadening student perspective and imparting an understanding of diversity and the global and societal impacts of technology.

Technical Content The technical content of a program must focus on the applied aspects of science and engineering in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions. The technical content must develop the skills, knowledge, methods, procedures, and techniques associated with the technical discipline and appropriate to the goals of the program.

The technical content develops the depth of technical specialty and must represent at least 1/3 of the total credit hours for the program. In order to accommodate the essential mathematics, sciences, communications, and humanities components, the technical content is limited to no more than 2/3 the total credit hours for the program.

- a. The technical content of the curriculum consists of a technical core and the increasingly complex technical specialties found later in the curriculum. The technical core must provide the prerequisite foundation of knowledge necessary for the technical specialties.
- b. Laboratory activities must develop student competence in the use of analytical and measurement equipment common to the discipline and appropriate to the goals of the program.
- c. Technical courses must develop student knowledge and competence in the use of standard design practices, tools, techniques, and computer hardware and software appropriate to the discipline and goals of the program.
- d. Capstone or other integrating experiences must draw together diverse elements of the curriculum and develop student competence in focusing both technical and non-technical skills in solving problems.

Cooperative Education Cooperative education credit used to satisfy prescribed elements of these criteria must include an appropriate academic component evaluated by the program faculty.

The role of the board is to review and comment on the department curriculum.

Criterion 6. Faculty

Overall competence of the faculty will be evaluated through such factors as formal education, balance of academic experience and professional practice, industrial experience, professional certification, teaching experience, teaching effectiveness, technical currency, scholarly activity, professional society participation, communication skills, extracurricular support for student activities, and similar attributes appropriate to the program educational objectives.

Individual faculty members must have educational backgrounds, industrial experience, professional practice, communication skills, and technologically current knowledge that support the field of instruction and program educational objectives. Collectively, the faculty must be capable of providing students an appropriate breadth of perspective and effective instruction in the use of modern technical and non-technical methodologies in careers appropriate to the program educational objectives.

The program must have an effective professional development plan for its faculty.

The number of faculty members must be sufficient to provide program continuity, proper frequency of course offerings, appropriate levels of student-faculty interaction, and effective student advising and counseling.

Each program must have effective leadership through a full-time faculty member with defined leadership responsibilities for the program.

The program faculty must have sufficient responsibility and authority to define, revise, implement, and achieve program educational objectives.

The role of the board is to review and comment on faculty and faculty new hires.

Criterion 7. Facilities

Adequate facilities and financial support must be provided for each program in the form of:

- a. suitable classrooms, laboratories, and associated equipment necessary to accomplish the program educational objectives in an atmosphere conducive to learning
- b. laboratory equipment characteristic of that encountered in the industry and practice served by the program
- c. modern computing equipment and software, characteristic of that encountered in the industry and professional practice served by the program
- d. Internet and information infrastructures, including electronic information repositories, equipment catalogs, professional technical publications, and manuals of industrial processes and practices adequate to support the educational objectives of the program and related scholarly activities of students and faculty

The role of the board is to review and comment on the department facilities and equipment, including capital expenditures.

Criterion 8. Support

A. ADMINISTRATION

The administration must be effective in the:

- a. selection, supervision, and support of the faculty

- b. selection and supervision of the students
- c. operation of support facilities for faculty and students
- d. interpretation of the college to members of engineering and technical professions and the public

B. INSTITUTIONAL SUPPORT

Institutional support must include:

- a. adequate financial resources and constructive leadership to assure the quality and continuity of the program
- b. resources sufficient to attract, retain, and provide for the continued professional development of a well-qualified faculty
- c. sufficient financial and human resources to acquire, maintain, update, and operate facilities and equipment appropriate for the program
- d. services to assist students in finding employment upon graduation.

C. PROGRAM ADVISEMENT

An advisory committee representing the organizations that employ graduates must be utilized to advise the program in establishing, achieving, and assessing its goals. The committee must periodically review program curricula and provide advisement on current and future needs of the technical fields in which graduates are employed.

The role of the board is to review and comment on the department's support and resources.

Criterion 9. Program Criteria

Where applicable, each program must satisfy program criteria that amplify these general criteria and provide the specifics needed for a given discipline. A program must satisfy all program criteria applicable to the technical specialties implied in the program title.

The role of the board is to review and comment on the program at large.

Article IV – MET-IAB Duties and Effectiveness

An effective MET-IAB board should:

1. Be broad-based and composed primarily of practicing engineers and senior technical personnel with active interests in the institution and the program it offers and with intimate knowledge of the current work of technical engineering personnel and the work they are likely to do in the near future.
2. Industrial advisory boards can contribute significantly to the growth and development of engineering technology programs as a means of assuring technical currency of the program and maintaining close liaison with the supporting and employing industries.
3. Meet at least twice per year, Fall and Spring, with the administration and the faculty to discuss industry trends, program needs, progress, and problems, and to recommend solutions. Records and minutes of this board should be maintained and the data collected will be used in the assessment and program evaluation process.

4. Periodically review program offerings and course content to ensure that the current and future needs of technical personnel in industry are being met.
5. Promote the dialog between students, faculty, industry, and professional societies.
6. Assist in the recruitment of a competent faculty and of potentially capable students.
7. Assist in the placement of graduates.
8. Assist in obtaining financial aid and part-time employment for needy students.
9. Assist in obtaining financial and material resources for the institution and in assuring a high level of community awareness and support of the program offerings.

Article V – Organization and Membership

Section - 1. The written appointment to the IAB will be by the President of MSCD or appointed representative of the President. Nominations will typically be made through the Engineering Technology Department Chair; however, any other means of nomination of a member to the President can be executed.

Section - 2. Membership requires a commitment on the part of the individual to serve for a minimum of two years on the board. The term of the IAB service will be two (2) years. A member will have a maximum of three (3) continuous terms of service. A former member can be re-appointed after “sitting out” one term.

Section - 3. MSCD shall provide members formal recognition of membership so that meeting attendance shall be facilitated from member employers.

Section - 4. The board IAB minimum size shall be eight (8) members. The IAB maximum size shall be sixteen (16) members. Membership shall consist of members drawn from industrial representatives and professional personnel. At-large or non-Colorado resident membership is encouraged to add breadth to the scope of the membership.

Section - 5. Membership is not subject to delegation.

Section - 6. Termination will be by term expiration with no provisions made for terminating inactive members.

Section - 7. Ex officio membership shall automatically be extended to Mechanical Engineering Technology program faculty and staff, and the administrative members of the Metropolitan State College of Denver (MSCD), including, but not limited to, the Chair of the Engineering Technology Department, the Dean of the School of Professional Studies, Provost and Vice- President of Academic Affairs, and President of MSCD and other staff and support entities as deemed necessary.

Article VI – Officers and Elections

Section - 1. Officers of the board shall consist of the Chair, Vice-Chair and Secretary. No Treasurer position is included, as this board has no financial role.

Section - 2. The officers shall be elected during the annual IAB meeting. Officers shall serve for two-year terms. Nominee must give their consent to serve in that capacity. Voting may be done by electronic means, open voting or secret ballot. A candidate for office shall be deemed elected by a majority of all ballots cast.

Section - 3. The Chair shall be the authorized leader. The Chair will preside at all meetings.

Section - 4. The Vice Chair shall preside at all meetings in the absence of the Chair.

Section - 5. The Secretary shall record the minutes of each meeting of the board. Support staff from the MET program may assist with this function.

Section - 6. Should a vacancy occur in any office, an interim officer should be determined by the board until such time as an election is held.

Article VII - Regular Meetings

Section - 1. Meetings shall be held, at a minimum, twice per year. Additional meetings may be scheduled as determined by the board members. Meetings will typically be held within the state of Colorado.

Section - 2. The quorum of the board shall not be less than 1/3 of the active, resident (state of Colorado) members.

Section - 3. Meetings shall be on a regularly scheduled basis with enough advance notice to allow attendance. These meeting times will be published to the appropriate department or program web site by engineering technology staff. Adjustments to the schedule will be approved by the board. Unless an emergency at least thirty days notice for additional meetings outside of the schedule will be given. Engineering technology staff will assist in reminder notices for meetings.

Section - 4. Meetings shall be subject to the laws and policies of the State of Colorado.

Article VIII – Voting Rights

Section - 1. At-large members will have voting rights on board business. However at-large members will not be counted in the members present at a meeting for quorum purposes, unless they are physically present.

Section - 2. At-large members may add comments to minutes of meetings via electronic means such as email.

Section - 3. Non-present members including at-large members shall not affect the outcome of a vote taken of members present at the scheduled meeting unless said vote ends in a tie. Non-present members may make their vote known via electronic means prior to a vote on an issue but only considered as a tie-breaker.

Section - 4. Issues may be placed before the membership for a vote via electronic means such as electronic mail. A majority of those members voting electronically shall be required to consider the issue as approved. The electronic voting will include at-large members for electronic votes on issues. A defined time period of one week shall apply to the receipt of all electronic votes submitted by email.

Section - 5. Affiliate (Adjunct) Faculty have from time to time come from the IAB membership, in said cases the member shall retain voting rights.

Section - 6. Ex officio members shall not have voting rights but may comment on board measures being brought for a vote.

Article IX – Engineering Technology Department Board

Section - 1. The Department of Engineering Technology (ETS) shall use as an Industrial Advisory Board the joint membership of the Civil, Electrical, and Mechanical Industrial Advisory Boards. Meetings of the ETS Board shall in most instances require just representation from each program board, however on special occasions the membership may be required to meet in its entirety.

Section - 2. The ETS Board shall meet a minimum of once a year. Meetings of the ETS Board may coincide at the same day of a program IAB meeting.

Section - 3. The bylaws of the individual engineering technology program boards shall be the same except in naming of the boards.

Article X - Amendments

Section - 1. Bylaws of the individual engineering technology program boards shall be amended as a whole.

Section - 2. Equal representation of individual program boards shall exist for a bylaw amendment vote to occur. Members of an individual program board may be asked to abstain from voting in order to obtain equal representation. The abstaining member(s) shall be chosen by the individual program board.

Section - 3. All proposed amendments to these IAB Bylaws shall be approved by a simple majority of the members present at Department of Engineering Technology Industrial Advisory Board meeting, where no majority exists from any individual program board. An electronic vote on amendments may be scheduled, pursuant to the above section on equal representation.

Article XI - Status

This boards are organized for advisory purposes only and not for profit. The boards shall have no financial role in holding any monies or property. Any financial responsibilities will be addressed within the organizational structure provided by MSCD.

Article XII - Parliamentary Authority

The current edition of *Roberts Rules of Order* shall be the parliamentary authority for all matters of procedure not specifically covered by the bylaws of the board.