

# **ASEE MECC: The Great Story of a Successful Member Initiative**

**Jim Farison**

**Department of Engineering, Baylor University**

## **Abstract**

Dr. Joan Gosink, Colorado School of Mines, with help from some other engineering educators, organized a forum at the ASEE 2001 annual conference in Albuquerque, NM, for faculty members interested and/or involved in multidisciplinary engineering programs. With continued leadership by Dr. Gosink and others, that initiative has increased its constituency and program at each of the succeeding ASEE Annual Conferences and has a full program comprising five technical sessions and a business meeting scheduled for the 2005 ASEE Annual Conference in Portland, OR. Accompanying the constituent and programmatic development over the past four years has been the formalization of this group into the officially recognized ASEE Multidisciplinary Engineering Constituent Committee, with bylaws, officers, and website. With the successful growth of both constituency and program, a likely next step is the petition for formal recognition as an ASEE Division.

## **Introduction**

This paper outlines the historical development of the new ASEE group, currently recognized as the Multidisciplinary Engineering Constituent Committee (MECC), from its conception in early 2001 and initial meeting in June 2001 to its officially recognized status today. The emphasis is on the evolving development of its purpose, program and goals. The MECC purpose now includes: 1) providing a strong presence and program for its constituents (and others) each year at the annual ASEE conference, and 2) achieving the membership level to become an ASEE Division. A third, somewhat more focused, emphasis from the beginning has been to represent a significant part of its constituents in the development of the understanding and recognition of multidisciplinary (and non-traditional) engineering programs<sup>1-5</sup> for which there are no ABET accreditation program criteria. A specific and significant initiative, with roots back to that initial assembly in 2001 that has become the MECC, is the proposal that ASEE become the engineering organization that represents these programs in the accreditation process (as ASME now does for ME programs, etc.). The story is also a documentation of the vision and achievement of the leader of the initiative that has become the MECC; namely, Dr. Joan Gosink, Colorado School of Mines.

From a flurry of email communications early in 2001 has now developed a new ASEE Constituent Committee (a precursor to a Division). Following is an outline of the history, programs, and organizational development of this initiative, which has become the ASEE Multidisciplinary Engineering Constituent Committee (MECC). From forums held in borrowed sessions at the 2001 (Albuquerque) and 2002 (Montreal) ASEE Annual Conferences and a courtesy share of a technical session at the 2003 (Nashville) meeting, MECC delivered its own full program with five technical sessions and a business meeting at the 2005 ASEE Annual

Meeting in Portland, OR. This paper reviews the history of this new group and the development of its increasing role in engineering education.

### **Year 2001 and the ASEE Annual Conference in Albuquerque, NM**

The group that has now become the ASEE Multidisciplinary Engineering Constituent Committee (MECC) began early in 2001 with a series of widely disseminated email messages from the energetic initiative of Dr. Joan Gosink, at that time a Colorado School of Mines professor and director of their Division of Engineering. It was proposed that "those interested and/or involved in 'non-traditional engineering' programs" meet at the next ASEE Annual Conference.

Based on a very enthusiastic response to those initial communications, and with help from some other engineering educators (notably Dr. Edwin C. Jones, Iowa State University), a special meeting was organized and was held through the cooperation and sponsorship of the Electrical and Computer Engineering (ECE) Division. Session 2332 Forum for Non-traditional Engineering Programs was held on June 26 at the 2001 ASEE Annual Conference in Albuquerque, NM, for "those interested and/or involved in 'non-traditional engineering' programs."

With the extensive promotion and leadership by Dr. Gosink, the attendance at this initial meeting was very good, with a recorded attendance of 31, representing nearly as many different institutions. Dr. Gosink moderated the discussion and Dr. Jones served as secretary pro tem. The discussion was lively, with considerable debate over the appropriate thrust and the leadership of the group. It was decided to continue to meet, with the second meeting to be organized for the 2002 ASEE Annual Conference in Montreal, QB. As its initial leadership, the group selected a steering committee comprising Dr. Gosink (chair), Dr. Dayne Aldridge, Mercer University, and Dr. Harry Cook, University of Illinois, Urbana-Champaign, with Dr. Jones serving temporarily as secretary.

The informal notes by Dr. Jones from that meeting reported the following:

“Preliminary work indicated that ABET lists about 78 ‘non-traditional’ engineering programs with titles that include Engineering, General Engineering, Engineering Science, Engineering Physics, Engineering Systems, and similar variations. Currently these programs lack the cohesiveness of a ‘parent organization.’ This meeting is to initiate the development of a forum for the department heads of ‘non-traditional programs.’ Our objectives include the delineation of the problems, solutions, and unique opportunities available to this community. We believe that ASEE provides a natural base for consideration of these issues.

“Those present expressed a concern with the term ‘nontraditional,’ on the basis that it is a term stating what the group is not. After discussion, the consensus (was) to use the term ‘multidisciplinary engineering programs.’

“Discussion indicated that the multidisciplinary engineering programs may generally (be) grouped into three types:

- "a. Broad-based, single programs, often in a 4-year college.
- "b. Distinct specialization engineering program.
- "c. A multidisciplinary program existing within a large institution with several 'traditional' programs."

Another important topic of that initial meeting was the accreditation of such programs, which now have no "program-specific" criteria. The following points were recorded from the meeting:

- "a. There is no interest in having program criteria for multidisciplinary engineering programs.
- "b. While there is general satisfaction with the program evaluators being provided by the various societies, working with ABET, there was also the opinion expressed that this constituent group has a minimal role, if any, in the selection, training, and evaluation of the program evaluators. Further, few of the faculty (members) in multidisciplinary engineering programs are selected by the professional societies to be program evaluators.
- "c. There may be a need for supplemental materials both for multidisciplinary programs preparing to be visited, and for the multidisciplinary program evaluators.
- "d. Sponsorship of a training session might be a useful activity.
- "e. Could ASEE be a 'lead society' for multidisciplinary programs?" (This has financial implications.)"

Further, this inaugural meeting reached consensus that:

- "a. The group should seek to form a constituent committee within ASEE.
- "b. The group is willing to have assessment of institutional fees to support some activities."

### **Year 2002 and the ASEE Annual Conference in Montreal, QB**

The second meeting was described in the early email announcements as the Department Heads of Multidisciplinary Engineering Programs (DHMEP) meeting. The notes of the initial meeting in 2001 included the statement, "This meeting is to initiate the development of a forum for the department heads of 'non-traditional programs.'" Similarly, an April 2002 email announcement for the second meeting, to be held at the 2002 ASEE Annual Conference in Montreal, reflected this theme with the statement,

"Currently, each of the major societies ... has active department heads groups that forward the interests of their respective programs. Our objective is to create a similar supportive activity. For example, at the first meeting, we discussed the benefits of having ASEE serve as the 'parent' organization for ABET evaluators of non-traditional degree programs. It was widely felt that ASEE's participation in the selection of ABET evaluators for our programs could be helpful. In addition, a direct affiliation with ASEE, regular presence at ASEE

conferences, and articles in Prism could focus positive attention on non-traditional programs.”

The proposed agenda items for the second meeting were:

"the formalization of DHMEP as an ASEE constituent committee,  
"specific examples of special programs and unique features of MEP programs at various colleges and universities,

“ABET experiences, and

“draft of a survey related to the faculty issues at non-traditional engineering programs.”

The actual program slot at the 2002 ASEE Annual Conference in Montreal was again provided by the ECE Division and was scheduled for June 17. It was listed as Session 1732 Forum for Non-traditional Engineering Programs, with Dr. Gosink and Dr. Jones as Moderators. The published advance description of the session read,

“ABET recognizes non-traditional engineering programs with titles such a general engineering, engineering science, engineering physics, or engineering systems. This forum will provide an opportunity for department heads/chairs and others interested in non-traditional engineering programs to discuss the problems, issues, opportunities, and unique solutions available to the community, including possible formation of an organization/committee.”

Unfortunately, Dr. Gosink was unable to attend the meeting, but her colleague from Colorado School of Mines, Dr. Robert King, and Dr. Jones coordinated the meeting.

Meeting notes prepared by Dr. King document the content of the meeting, including the following business:

"Attendees at the meeting introduced themselves and briefly described their programs. Baylor University representatives distributed copies of a paper<sup>1</sup> based on a survey of general (or undesignated) engineering programs to the attendees. The attendees represented a variety of multidisciplinary programs; for example,

1. General engineering programs with no specializations
2. General engineering programs with specializations
3. Programs that merged two or three disciplines but were not as general as 1. or 2.
4. Programs that began as multidisciplinary but later divided and retained the multidisciplinary degree a well
5. Programs at research universities
6. Programs at liberal arts colleges
7. Programs that merge engineering and management.”

In addition to a summary of the Albuquerque meeting and among other highlights recorded in the notes of the meeting were these two important points:

"The point that some multidisciplinary programs like Bioengineering and Engineering Physics are already represented by ASEE committees. This committee is not meant to supersede any existing committees of ASEE, but members of other committees are welcome to participate in this committee.

"The point that forming a constituent committee is a first step in achieving ABET representation of multidisciplinary programs through ASEE. There is some concern that unless universities are willing to contribute to the cost of ABET fees and visitor training, ASEE may not support such a proposal. It was emphasized that the constituent committee has other agenda items as well, such as providing a focal point for communications between members and being a contact point for discussions on issues like ABET accreditation. ABET is discussing the issue of blurring the traditional programs, and input from this group may be helpful."

A petition to become a Constituent Committee of ASEE, prepared by Dr. Gosink, was edited and then signed by 17 attendees. The group decided to plan a program, with both a technical session and a business meeting, for the 2003 ASEE Annual Conference scheduled for Nashville, TN. Two areas of focus for technical session papers were suggested: multidisciplinary engineering program curricula and multidisciplinary engineering program visibility. Those assembled elected Dr. Gosink as chair, Dr. Jim Farison, Baylor University, as vice chair (and program chair) and Dr. Phillip Young, University of Wisconsin-Platteville, as secretary/treasurer.

From the original initiative at the 2001 meeting and the petition prepared at the 2002 meeting and subsequently submitted to ASEE, the new Multidisciplinary Engineering Constituent Committee (MECC) was approved by the ASEE Board of Directors in mid-October 2002.

### **Year 2003 and the ASEE Annual Conference in Nashville, TN**

The initial MECC bylaws, drafted by Dr. Gosink and reviewed by Dr. Farison, were submitted to ASEE in January and approved by the ASEE Board of Directors on January 26, 2003. This approval was announced in the March 2003 issue of the emailed ASEE ACTION, distributed on February 19.

In a pre-conference publicity emailing, Dr. Gosink wrote: "The real goal of the MECC is to promote the interests of Multidisciplinary Engineering programs throughout the country. The new affiliation with ASEE provides us with a venue for furthering these interests, and for drawing attention to the very real achievements of these programs."

The approvals of the group's petition and bylaws were too late in the annual cycle for MECC to be eligible to sponsor its own technical sessions at the 2003 ASEE Annual Conference in Nashville. However, with the gracious cooperation of the Physics and Engineering Physics (PEP) Division, MECC was provided time in a PEP technical session, Session 1380 Issues in Multidisciplinary Programs, on June 23. The session included the presentation of five papers

generated from the MECC constituency. Further, MECC was eligible to sponsor its own official business meeting, Session 1671 MECC Business Meeting.

The first official MECC organizational meeting chaired by Dr. Gosink was held with 10 members present. Chair Gosink reported that ASEE had approved the MECC petition and a preliminary draft of the group's bylaws. The draft bylaws were reviewed carefully, section by section, and several wording improvements were considered and accepted by consensus, whereupon Dr. Charles Backus, Arizona State University, East, moved, and Dr. Robert Barat, New Jersey Institute of Technology, seconded, the motion to adopt the revised bylaws. The motion was passed by unanimous vote. The bylaws provide that officers serve for two-year terms. Officers elected were Dr. Gosink, chair; Dr. Farison, vice chair (and program chair); and Dr. Young, secretary/treasurer. The MECC was now official, with members, officers and bylaws. Dr. Steven VanderLeest, Calvin College, offered to serve and was approved as webmaster.

Suggestions for topics for the MECC Call for Papers for the 2004 ASEE Annual Conference in Salt Lake City were given.

Among the important actions at the 2003 business meeting in Nashville, in addition to the review and approval of the MECC bylaws, was the next step in the development of the mission of the MECC. According to the minutes prepared by Dr. Farison,

"Dr. Gosink indicated that one of the motivations of the group that petitioned for the formation of MECC was to have a role in representing multidisciplinary programs with ABET. She suggested that MECC contact ABET and request notification of discussions of 'multidisciplinary engineering' programs. Those present gave general concurrence."

With formal ASEE recognition as a Constituent Committee, the MECC now had additional resources available, including its listing on the ASEE website and eligibility to host technical sessions at the annual conference. A call for papers for the 2004 Annual Conference was published in the September 2003 issue (page 55) of ASEE Prism. MECC also distributed its CFP to its own informal mailing list and posted it on its new website.

ASEE records show that at the time of the annual meeting in June, MECC had a membership of 75 individuals. By October 2003, that number had grown to 109.

### **Year 2004 and the ASEE Annual Conference in Salt Lake City, UT**

By January 2004, MECC membership reached 132.

Many good manuscripts were received and reviewed, and 20 final papers were accepted. The papers were organized into a full program with four technical sessions, and provided an interesting and varied program for the 2004 Annual ASEE Conference in Salt Lake City. The MECC program comprised four technical sessions and a business meeting, with the following schedule and session titles:

Monday, June 21

1171	7:00 - 8:15 am	Multidisciplinary Courses and Assessment
1471	12:30 - 2:00 pm	Multidisciplinary Engineering Programs
1671	4:30 - 6:00 pm	Business Meeting

Tuesday, June 22

2171	7:00 - 8:15 am	Multidisciplinary Programs: A Look Ahead
2471	12:30 - 2:00 pm	Multidisciplinary Engineering Education by Design

The business meeting, chaired by Dr. Gosink, was attended by 9 members. The following were the primary items of business:

Dr. Gosink announced that, on Sunday, June 20, the ASEE Board of Directors had approved the concept of assuming the role of “Lead Society” for “EAC programs in engineering (without modifiers), engineering physics, and engineering science(s), and TAC programs in engineering technology (without modifiers).” The ASEE leadership plans to develop and present a petition for this status to ASEE within the next few months. Discussion focused on how MECC could support this effort. It was agreed to contact Dr. Edwin C. Jones for this information. Dr. Gosink also reported that she had been asked to serve on an ASEE implementation committee when the petition was approved by ABET.

The question of evolving MECC into a division was discussed, as the group is coming close to the minimum of 200 members to become a division. Meeting participants were urged to encourage conference session attendees to join MECC. Planning for the 2005 Annual ASEE Meeting to be held in Portland was also discussed.

A nominating committee was formed to recommend candidates for chair, vice chair/program chair and secretary/treasurer for the two-year terms beginning in June 2005. Dr. Gosink (Colorado School of Mines), as out-going chair, Dr. Steve VanderLeest (Calvin College) and Dr. Fred Driscoll (Wentworth Institute of Technology) were selected to serve. Dr. Jones will also be asked to participate.

The 2005 MECC Call for Papers appeared in the Summer (pp. 77) and September (pp. 59-60) 2004 issues of Prism and on the MECC website, and was emailed to the group’s extensive contact list. Six technical sessions and a business meeting were requested for the 2005 Annual Conference. Five technical sessions and a business meeting were approved.

The ABET Board of Directors, at their meeting on October 30, 2004, considered the ASEE proposal and took the following action, as reported on the ABET website, [http://www.abet.org/news\\_board.html](http://www.abet.org/news_board.html).

#### ASEE PETITION FOR LEAD SOCIETY TABLED

The American Society for Engineering Education (ASEE) submitted a petition to the ABET Board of Directors to approve ASEE as the Lead Society for EAC Programs in engineering (without modifiers), engineering physics, and engineering science(s), and for TAC Programs in engineering technology (without modifiers).

Several questions were brought up during the discussion that required further clarification. The Board tabled the motion and asked ASEE to address the questions and acquire inputs and comments from institutions and programs regarding the petition before bringing the petition back to the Board of Directors.

The next ABET Board of Directors meeting is scheduled for Saturday, March 19, 2005, at the Waterfront Marriott Hotel in Baltimore, MD.

By the end of 2004, MECC membership had grown to 239. The requirements for upgrading from a Constituent Committee to a Division (Article VI, Section 3, of the ASEE Bylaws) are:

“After a minimum of three (3) years of successful operation, and upon reaching a membership of approximately two hundred or more, the Constituent Committee may petition to the Board of Directors for Divisional status. The petition will be submitted through its Council and the Council will recommend its pleasure to the Board.”

An ASEE staff person added, in a December email message, “The Board of Directors can, however, grant Division status at its discretion for units that have grown very quickly and have demonstrated their ability to come up with active volunteer leaders and put on successful technical programs. With your current membership, and having put on four technical sessions at the Salt Lake City meeting, you could probably make a good case for accelerated upgrade to Division status.”

### **Year 2005 and the ASEE Annual Conference in Portland, OR**

The Call for Papers (and a couple of abstracts that were selected by the program chair from the undesignated site) resulted in a total of 30 abstracts for review. One was subsequently withdrawn. From the remaining 29 abstracts, 28 were approved for submission of full draft papers. From that number, after two withdrawals, 26 full draft papers were submitted. With the reduction from the six technical sessions requested to the five sessions granted, review and selection were influenced both by the number of paper slots in the approved sessions and by the themes of the planned presentation session. After review, 24 were Accepted Pending Changes and are anticipated for the conference program. Final papers are being submitted as this paper is being completed.

The MECC program for the 2005 annual conference includes five paper presentation sessions and the annual business meeting.

#### Monday, June 13

1371	10:30 - 12:00 noon	Improving Multidisciplinary Engineering Education
1471	12:30 - 2:00 pm	Multidisciplinary Engineering Programs II
1671	4:30 - 6:00 pm	Business Meeting

#### Tuesday, June 14

2271	8:30 - 10:15 am	Multidisciplinary Engineering Courses II
2471	12:30 - 2:00 pm	Multidisciplinary Engineering by Design II

Wednesday, June 15

3471 12:30 - 2:00 pm Multidisciplinary Engineering Program Innovations

### **Contact and Participation Information**

Members of ASEE may affiliate with the MECC by selecting MECC as one of the six groups allowed with the ASEE membership. MECC does not currently have any dues for affiliation.

The MECC bylaws and officer contact information are available from the ASEE website, at <http://www.asee.org/members/divisions/default.cfm>.

The MECC's own website, where calls for papers and meeting minutes are posted, is located at <http://engr.calvin.edu/mecc>.

### **References**

1. Byron Newberry and James Farison, "Current status and uses of the (undesignated) engineering program," ASEE Gulf Southwest Section Conference Proceedings (CD-ROM, 8 pages), Lafayette, Louisiana, March 20-22, 2002.
2. James Farison and Byron Newberry, "The current status and uses of the general (undesignated) engineering program with a case study," ASEE Annual Conference and Exhibition Proceedings (CD-ROM, #1765, 9 pages), Nashville, Tennessee, June 22-25, 2003.
3. Byron Newberry and James Farison, "A look at the past and present of general engineering and engineering science programs," *Journal of Engineering Education*, 93(3):217-226, July 2003.
4. Jim Farison, "ASEE initiative in multidisciplinary engineering education programs," ASEE Gulf Southwest Section Conference Proceedings (CD-ROM, 8 pages), Lubbock, Texas, March 10-12, 2004.
5. Jim Farison and Byron Newberry, "Curricular and student characteristics of accredited engineering/general engineering programs," ASEE Annual Conference and Exhibition Proceedings, Session 1471 (CD-ROM, 19 pages), Salt Lake City, Utah, June 13-25, 2004.

### **Biographical Information**

JAMES B. FARISON

The author became professor and chair, department of engineering, Baylor University, Waco, TX, in August 1998. He received his BSEE from the University of Toledo, and his MSEE and PhD from Stanford University. He is a senior member of IEEE, and a registered PE in Ohio and Texas. He is the ASEE campus representative at Baylor University, and was recognized as the 2003 national ASEE campus representative of the year.