Official Minutes of the June 22nd, 2004 Meeting of the K-12 Engineering Division Constituent Committee of the American Society of Engineering Education

The meeting was officially called to order by Dr. Jackie Sullivan at 2:30 pm on Tuesday June 22nd, 2004. ASEE President Duane Abata addressed the assembled group regarding the formation of the Constituent Committee and the rapid progress to date. Dr. Sullivan provided a brief history on the formation of the committee and presented the objectives of the potential new K-12 division of ASEE as outlined in the by-laws approved on February 1, 2004. A potential membership list was distributed for sign-up, and the members of the organizing committee were introduced.

Dr. Gary Ybarra was introduced, and he presented the results of the on-line election of the new Executive Committee for the division. A motion was made and duly seconded that the results of the election be ratified by acclimation. A voice vote was conducted, and the unanimous consent of those present was that the results of the on-line election were ratified. The new officers of the K-12 Engineering Division are:

Rob Reilly – Division Chair
Laura Bottomly – Division Chair-Elect
Christine Cunningham – Vice Chair for Program Development
Larry Richards – Vice Chair-Elect for Program Development
Louise Audette - K-12 Teacher Representative
Robert Stwalley – Division Secretary/Treaurer
Beth McGrath – Division Publications Editor
Stacy Klein – At-large Member
Jed Lyons – At-large Member
Jackie Sullivan – At-large Member
Malinda Zarske – At-large Member

The meeting was turned-over to Division Chair Dr. Rob Reilly.

Dr. Reilly made some introductory comments in which he expressed his feeling that the new division should act as an interconnection between various local nodes in promoting technical literacy. Dr. Reilly then opened a brainstorming and open discussion session regarding the future of the future of the division. The general topic of discussion was what major initiatives we wished to accomplish as a division of ASEE. Additionally, the discussion was to focus upon what resources the division already had that could be focused on the K-12 engineering outreach problem, the role of existing university and industrial organizations in the general strategy, and what standing sub-committees should be created. The general consensus of the group was that once the division was on a firmer organizational basis, subcommittees should be formed to pursue legislative

outreach, establish division awards, examine curricula, study pedagogy, update and maintain the division by-laws, manage the division finances, promote membership, design a division newsletter and website, and provide coordination with other organizations with common objectives.

Considerable active discussion followed regarding the objectives of the division and the role that ASEE should play in the promotion of engineering outreach to the pre-K through 12 educational community. It was pointed-out that it was critical to the future economic well-being of the country that we educate the various state legislators and boards of education regarding the dire need of pre-engineering programs within the public schools. There was general agreement that it was necessary to initially focus promotional efforts on these individuals, since they were in positions to favorably influence educational policy. It was suggested that Principals be added to the initial promotion list. The need to work in partnership with various existing Colleges of Education was elaborated. It was generally felt that there was a tremendous uncertainty among teachers regarding what engineers did and that it would be necessary to create a greater awareness of engineering as a profession that dramatically improved the overall standards of living and the quality of life. It was suggested that the introduction of more engineers into the public school classroom would be beneficial in this regard and that efforts should be undertaken to facilitate alternative teaching licensure for members of the engineering profession. Several members indicated that the creation of education minors within existing engineering curricula would be beneficial for teaching certification. The collaboration and use of existing teaching excellence centers was recommended, along with the need for the establishment of an engineering category of teacher certification. It was generally felt that alternative routes to teaching certification were very needed. Many present expressed the opinion that it would be necessary to convince school boards and administrators of the desirability of hiring engineers as teachers. Toward that end, it was recommended that outreach efforts also include national and state school board organizations. It was emphasized that progress would only follow the establishment of effective connections and productive relationships. The members expressed a strong desire not to duplicate the existing efforts of other groups and to seek active collaboration with them to leverage everyone's efforts. Potential collaborators were identified as ABET, the engineering professional societies (ASME, IEEE, ASAE, ASCE, etc.), Colleges of Education, teachers' unions, ITEA, other teachers' professional societies, the US Department of Education, industrial firms, Chambers of Commerce, and the Advertising Council. Strategic partnerships with these organizations were identified as crucial. It was generally recognized that at the present time there were considerable obstacles to the introduction of dedicated courses promoting engineering and that efforts should be concentrated on providing suitable lesson modules that teachers could utilize that would highlight engineering. The general consensus was that teachers would readily accept free educational modules, but only if they were aligned within applicable current content standards. It was felt that more teachers would be supportive of our efforts, if there was a critical mass of them present during our deliberations. Industrial Technology teachers were identified as being particularly important to our efforts. Support from collegiate education faculty was also identified as important. It was felt that a close examination of the existing standards for technology education

should be undertaken with an eye toward which pieces engineers could positively contribute. The need for research proving engineering education was effective in the K-12 setting was identified, and the funding implications of the introduction of additional material into the K-12 classroom were identified as an obstacle. Questions were raised regarding where the proposed new modules would be introduced in the public school system and what would be their focus. Alternative venues, such as the Boy Scouts, Girl Scouts, Big Brothers / Big Sisters, and Kids' Clubs, were suggested. In-service modules for existing teachers and general public education regarding engineering were also recognized as important to the efforts of the division. Parents of children in the public school system were additionally identified as targets for outreach. The group clearly felt that efforts at outreach must occur on a continuing basis and that a hit-and-miss approach was destined to fail. An on-line teacher resource website was suggested with a catalog of projects and problems. Many present felt that the division could have a large positive effect on education by providing a reviewed resource base of projects for teachers. However, it was recognized that, in general, there would be limitations to the division's efforts and that it would be critical to remain focused and not to dilute our efforts by attempting too many initiatives. The need for further discussion of objectives and initiatives was clearly identified. An on-line discussion group, list-serve, website, and archive were recommended by the group. Further ideas were to be sent to the Vice Chair for Program Development.

Mr. Dan Marcek was introduced, and he presented a draft mission statement for the division. Discussion followed which centered on whether the division had as its ultimate goal the improvement of K-12 education or was it truly focusing on pre-college efforts. The comment was made that pre-K educators were left-out of the current thinking and that it was important to include all potential students and segments of society. It was pointed out that the proposed statement did not identify research into methods to promote engineering education in the K-12 setting, and it did not emphasize both formal and informal methods. Discussion also centered on the lack of focus on leveraging efforts through strategic partnerships in the proposed mission statement. Concern was voiced regarding the issue of direct engineering student pipeline enhancement or general societal technological literacy enhancement. Many felt that the proposed statement was too long, too specific, and did not identify areas of general concern. A new suggestion for a mission statement was before the group:

> To engage in broad partnerships to increase engineering and technological literacy and to expand the pool of qualified individuals able to enter the fields of engineering and engineering technology.

Many people felt strongly that this proposed statement was too simple. The Chair proposed that a sub-committee be formed of interested individuals to further examine the question of a mission statement. It was recommended that the sub-committee report back promptly, and the freshly developed mission statement be forwarded to the members electronically for ratification.

Dr. Martha Cyr was introduced, and she proceeded to open a discussion regarding the final official name of the division. Currently, both Pre-College and K-12 Engineering were in use and associated with the present Constituent Committee. Discussion centered around the college preparatory implications of the former and the lack of international recognition of the latter. It was felt that at the present time there was no certainty where the division would be concentrating its efforts and that it might be necessary to decide if the focus would be on primary or secondary education. Additional suggestions of "Youth Education and Outreach" and "Engineering Education Outreach" were put forth from the floor. A non-binding straw poll of the members present was conducted with the following results:

PreK-12 Engineering	38
Pre-College Engineering	4
Youth Education & Outreach	2
Engineering Education Outreach	20

The Chair stated that the subject would undergo further study and that the results of the straw poll would be considered before a final decision was put-forward for a vote.

Dr. Jackie Sullivan was introduced to provide a financial report. It was reported that we currently had roughly $150 in the bank. We could expect $500 annually from ASEE, but that in would be necessary for us to identify means to fund our potential efforts. Dues for the division are currently set at $7, and we have 342 registered members.

The Chair indicated that sign-up sheets for various sub-committees would be available following the meeting and that a motion to adjourn was in order. That motion was duly received from the floor and seconded. The motion passed on a voice vote, and the meeting was adjourned at 4:23 pm.