IEEE Region 6 Central Area
Guidelines for
Student Paper and Student Project Contests

Purpose

The IEEE **Student Paper Contest** and **Student Design Project Contest** offer undergraduate IEEE student members an opportunity to exercise and improve both written and verbal communication skills. Throughout an engineer's career, he or she will be constantly called upon to communicate ideas to others. Researching, writing, and presenting a paper or project provides a student with invaluable early experience in expressing ideas related to engineering. Since the primary function of the paper and project contests is to improve the engineering student's communication skills, no student should be discouraged from entering the contests. A student may enter and participate in either the Student Paper Contest or the Student Design Project Contest with a single subject or project but not both.

A. Eligibility

1. The entrant must be an undergraduate student at a school in the Region at which there is an IEEE Student Branch at the time of entry and presentation at the Branch contest.
2. A Student must complete and submit an application for membership in IEEE prior to entry in the Branch Contest.
3. An entrant may collaborate writing a paper with additional students, all of whom meet the above criteria.

B. Number of Entries

1. There shall be no limit of entries in the local Branch contest. If there is only one entry, the Counselor may declare the author submitting the paper the Branch winner.
2. Each Branch normally enters the first place winning paper in the next level contest. Exception: If there are limited participation from student branches then a student branch may enter more than one paper for the contest. In that case, however, the following conditions would apply:
    (1) If there is only one student branch with more than one team participating then all teams would compete for the three prizes.
    (2) If there are two student branches participating then each branch would receive at least one prize.
    (3) If there are more than three branches participating then only top team from top three different branches would be entitled to win the prizes.
3. No paper may be entered in the Area or Regional contest without the prior approval and certification of the Branch Counselor.

C. Prizes and Travel Expenses

1. The Institute Life Member Fund will provide the funds for the prize money. The prize levels for both the Student Paper Contest and Student Project Contest are:
    - First Prize $500
    - Second Prize $300
    - Third Prize $200
2. Additional prize money may be made available at the option of the Chairman of each contest.
3. The schools represented by the winning Regional papers may receive appropriate recognition from their Region.
4. Co-authors shall share equally in the allocation of cash awards.
5. Regional Student Activities Committee budget shall support the Area and Regional contest expenses, including travel, unless other funds are available.

D. Subject Matter

1. Papers should cover technical, engineering, management, or societal aspects of subjects reasonably within or related to the areas with which the author is familiar, either from courses, hobbies, summer work, or other similar experiences.
2. Projects should be given from a poster board or with a PowerPoint presentation. Projects should include specifications, schedules, design analysis and end product.
3. The work need not be original in content since the primary function of the student paper and project contests is to improve the student's communication skills. The work should, however, be original in treatment and concise in coverage of the author's contribution to the subject.

E. Paper Written Preparation

1. All papers must be typewritten, double spaced on one side only of eight and one-half by eleven inch paper. An equation or symbol that cannot be typed may be written in.
2. The pages of the paper must be numbered consecutively. The Introduction, Body, Conclusion, Tables, and Diagrams may not exceed 15 pages while the above sections with the Appendices may not exceed 20 pages.
3. In general, the contents of a Student paper shall be organized as follows:

    (1) Removable fly-leaf page: Since the judges must handle the papers without knowledge of the identity of the author or his or her school, it is required that the paper itself show no identification other than the title. The title, name of the author, school and Branch Counselor's name, author's IEEE member number, and his or her current address must be shown on a fly-leaf which can be removed.

    (2) Title page: On the title page, only the title of the paper should appear. The title should consist of the minimum number of key words necessary to portray accurately the contents of the paper. A reader’s interest is stimulated by a well chosen title. The author's name should **NOT** appear on the title page, nor should any other persons or schools.

(3) Table of Contents: The table of contents should consist of a list of the parts of the paper and the page numbers, in the order in which they occur.

(4) Abstract: The abstract should not describe the paper, but should give, in brief, the essential facts of its contents; for example, a brief of the problem or objective and a concise summary of the results or conclusion, touching upon methods or other details only if they are unique or if they are of some particular significance. The abstract should be no longer than 100 words.

(5) Introduction: The introductions should lead to the development of the subject so that the reader may obtain a clear understanding of the significance of the paper or article prepared. This can often be done by briefly giving the state of the art as background and then by bringing out the added advantages of the method of approach and emphasizing the importance of the results or conclusions.

(6) Body: To assist the judges in maintaining objectivity, all mention of the author's name and school should be restricted to a single introductory page. Thus, no mention of the author's name or school should be made in the article. Any references to the author's school should read "the university" without giving the actual name. The main argument of the subject is carried out in the body of the paper, complete with supporting data. The argument should proceed in a logical sequence according to a prepared outline. The writing should be in the third person. Support data and results can be presented most effectively as curves, charts, or tables. Standard graphical symbols and abbreviations should be used on all drawings (Ref. Graphic Symbols for Electrical and Electronic Diagrams, IEEE STD 315.). Well known abbreviations may be used in the text but should be defined where used the first time followed by the abbreviation in parentheses. Generally the use of abbreviations should be confined to tables and illustrations. Illustrations and tables should supplement, not duplicate, text materials; likewise, they should complement, not duplicate each other.

(7) Conclusion: The conclusions are often considered the most important part of a paper. They should be stated concisely in a separate section at the end of the paper. If there are three or more conclusions, better emphasis can be obtained by numbering each conclusion and setting it off in a separate paragraph.

(8) Tables: Generally, each table should be typed on a separate sheet and numbered consecutively using Roman numerals: Table I, Table II. Small tabulations or listings may be made in the text where necessary for continuity. Each table should be titled by giving the brief description as a heading following the table number at the top. Ditto marks should not be used in tables, but brackets may be used to group information on several lines.

(9) Figures: Figures should be numbered consecutively using Arabic numerals: Figure 1; Figure 2, etc. Three types of figures may be used: photographs, oscillograms, and line drawings. The reading material on illustrations should be

kept to a minimum. In short, the reading material should be included in the captions. Portions of the illustrations may be identified by letters and explained in the captions. Whenever feasible, several curves should be combined on the same coordinates. Their identifying letters or numbers should be in clear spaces between cross section lines. Readers generally prefer having the figures distributed through the article, although it is also permissible to bind them together at the end.

(10) Appendices: Detailed mathematical proofs, development of equations and examples which are subordinate to the main argument in the body of the paper, but not essential to following the argument, should be treated in the appendices. Main equations as they are developed should be numbered consecutively, with the number in the right margin. The equations, figures, and tables in the Appendices should be numbered consecutively following the numbers used for the equations, figures, and tables in the text (such as, if table IV were last in the text, table V would be first in the Appendices.)

(11) References: To enable the reader to consult important works used by the author incidental to the preparation of her or his manuscript and other related literature might be helpful, a suitable reference list should be appended. References should be numbered consecutively and should follow the form shown below:

- For a periodical: R.N. Hall, Power Rectifiers and transformers, Proc. IRE, Vol. 40, pp. 1515-1518, November 1952.
- For a book: W.A. Edison, Vacuum Tube Oscillators, John Wiley and Sons, Inc., New York, New York, pp. 170-171, 1948.
- For an article: B. Lawrence, B.H. Weil, and M.H. Graham, Making online search available in an industrial research environment, Journal of the American Society for Information Science, pp. 364-369, Nov-Dec. 1974.

4. The Contest Chairman of each contest shall determine the number of copies of each paper that shall be submitted for entry in the contest.
5. Regional winners will receive further information from the Manager of Student Services at IEEE Headquarters concerning the required format of papers for publication in IEEE STUDENT PAPERS.

F. Paper or Project Oral Presentation

1 Fifteen (15) minutes shall be allotted for the oral presentation and five (5) minutes for questions from the audience.
2. The paper contest chairman shall arrange a timing system, with the following characteristics:
   (1) A Signal will be given at the beginning of the oral presentation.
   (2) A warning signal will be given at the end of thirteen (13) minutes.
   (3) A stop signal will be given at the end of fifteen (15) minutes.
   (4) The contestant should cease talking when the stop signal is given. The contest judges will assess penalties for running overtime.

(5) The contestant will be stopped by the judges at the end of twenty (20) minutes if he continues past the stop signal.
(6) In addition to the fifteen and five minute periods, the judges shall be given up to ten (10) minutes to complete their evaluations between presentations.

3. Individuals asking questions during the discussion period shall state their name and affiliation. If the audience does not present any questions, the judges should do so. Questions will be stopped at the end of five (5) minutes.
4. Demonstration or display apparatus may **not** be employed as a part of the contest presentation. Visual aids such as slides, placards, charts, view graph pictures and motion picture films may be used.
5. Each contestant is responsible for making arrangements with the paper contest chairman for audio-visual equipment if needed.

G. Paper and Project Judging

1. Papers will be evaluated and judged on the basis of twenty equally weighted judging criteria. Evaluation and judging is based on 55 percent given to the written presentation and 45 percent weight given to the oral presentation. (Note that 65 percent of the judging criteria is related to the student's written and verbal skills, emphasizing that the paper contests primary function is to improve an engineering student's communication abilities.)
2. Projects will be evaluated and judged on the basis of twenty equally weighted judging criteria. Evaluation and judging is based on 55 percent given to the technical merit and 45 percent weight given to the oral communication skills.
3. Each of the twenty categories will be scored between 1 and 10. Accordingly the following guidelines:
    1) Maybe some one should suggest that he or she change his or her major.
    2) Did he or she even think about his or her point?
    3) Two more tries might have helped.
    4) Needs some polish to smooth the rough spots.
    5) Not bad.
    6) What is expected of someone at this level.
    7) Very Smooth.
    8) The individual must have put special emphasis on the area.
    9) So logical and correct that the words seemed to form in your mind as the contestant spoke or wrote them.
    10) Nearly perfect.
4. There shall be five (5) to seven (7) judges. The use of the same judges for both the Written and Oral presentations is optional and encouraged.
5. The judges shall be selected to represent a cross section of various disciplines in electrical, electronics and related fields of engineering. The Section and Regional SAC should be called on to assist in the selection of judges at all levels of the paper contest.
6. The judges should have a record of experience in written and oral communication of Ideas

Paper Contest Judging Criteria

Paper Written Presentation Evaluation

***Form* - 35%**

1) Concise, informative abstract. 1 2 3 4 5 6 7 8 9 10
2) Adequacy of introduction. 1 2 3 4 5 6 7 8 9 10
3) Logical development and analytical treatment in the body. 1 2 3 4 5 6 7 8 9 10
4) Adequacy of conclusion. 1 2 3 4 5 6 7 8 9 10
5) Compliance with paper contest guidelines on format. 1 2 3 4 5 6 7 8 9 10
6) Clarity and direction in exposition. 1 2 3 4 5 6 7 8 9 10
7) Grammar, spelling, style, and choice of words. 1 2 3 4 5 6 7 8 9 10

***Score* _____**

***Subject Matter* - 20%**

8) Originality of ideas, experimental procedures, processes, results, or conclusions due primarily to this author. 1 2 3 4 5 6 7 8 9 10
9) Originality of analysis, interpretation, restatement of inference based upon the work of others. (If the paper and its contents are entirely the work of the author, enter #8 score into #9.) 1 2 3 4 5 6 7 8 9 10
10) Quality and level of technical, social, or management content. 1 2 3 4 5 6 7 8 9 10
11) Factual and technical accuracy. 1 2 3 4 5 6 7 8 9 10

***Score*_____**

Paper Oral Presentation Evaluation

Form* - *30%

12) Organization--has introduction body and conclusions with transitions between each. 1 2 3 4 5 6 7 8 9 10

13) Logical development. 1 2 3 4 5 6 7 8 9 10

14) Poise, eye contact, and platform manners. 1 2 3 4 5 6 7 8 9 10

15) Grammar, fluency, and choice of words. 1 2 3 4 5 6 7 8 9 10

16) Clarity and directness in exposition. 1 2 3 4 5 6 7 8 9 10

17) Use of graphic aids. 1 2 3 4 5 6 7 8 9 10

Score_____

Subject Matter* - *15%

18) Apparent technical and factual accuracy and grasp of the subject. 1 2 3 4 5 6 7 8 9 10

19) Use of examples and analogies. 1 2 3 4 5 6 7 8 9 10

20) Discussion--judges should be prepared to stimulate discussion. 1 2 3 4 5 6 7 8 9 10

Score_____

Total Oral and Written Score_____

Project Contest Judging Criteria

Project Technical Content Evaluation

***Form* - 35%**

1) Elegance of Design and Construction 1 2 3 4 5 6 7 8 9 10
2) Utilization of sound electrical engineering design criteria as verified by the design layout and prototype craftsmanship. 1 2 3 4 5 6 7 8 9 10
3) Utilization of current technologies. 1 2 3 4 5 6 7 8 9 10
4) Benefit to society. 1 2 3 4 5 6 7 8 9 10
5) Compliance with project contest guidelines . 1 2 3 4 5 6 7 8 9 10
6) Clarity and direction in exposition. 1 2 3 4 5 6 7 8 9 10
7) Participant of each team shall be equally involved in design and construction of the project and be able to demonstrate the contribution of each team member.

   1 2 3 4 5 6 7 8 9 10

***Score* _____**

***Subject Matter* - 20%**

8) Originality of design, experimental procedures, processes, or construction.

   1 2 3 4 5 6 7 8 9 10
9) Proper documentation of the project such as engineering notebook, schematic diagrams, program list, flow chart, and operating manual. 1 2 3 4 5 6 7 8 9 10
10) Quality of construction. 1 2 3 4 5 6 7 8 9 10
11) Completeness of the project 1 2 3 4 5 6 7 8 9 10

***Score*_____**

Project Poster Board Evaluation

<u>Form</u> - 30%

12) Organization--has well organized and easy to understand and follow organization of the poster board. 1 2 3 4 5 6 7 8 9 10

13) Logical development. 1 2 3 4 5 6 7 8 9 10

14) During poster presentation has poise, eye contact, and platform manners. 1 2 3 4 5 6 7 8 9 10

15) Board presentation grammar, fluency, and choice of words. 1 2 3 4 5 6 7 8 9 10

16) Presentation clarity and directness in exposition. 1 2 3 4 5 6 7 8 9 10

17) Use of graphic aids on poster board. 1 2 3 4 5 6 7 8 9 10

Score_____

<u>Subject Matter</u> - 15%

18) Apparent technical and factual accuracy and grasp of the subject. 1 2 3 4 5 6 7 8 9 10

19) Use of examples and analogies. 1 2 3 4 5 6 7 8 9 10

20) Discussion--judges should be prepared to stimulate discussion. 1 2 3 4 5 6 7 8 9 10

Score_____

Total Poster Board and Technical Evaluation Score: _____