

IEEE Region 6 Central Area Guidelines for Student Design Contest

Purpose

The IEEE Region 6 Central Area **Student Design Contest** offers undergraduate IEEE student members opportunity to exercise and improve entrepreneurial, product development as well as written and verbal communication skills. The contest deliverables consist of a paper, oral presentation using slides such as PowerPoint (or other programs), and demonstration of a prototype.

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 contest.
2. Students must be members of IEEE or else complete and submit an application for membership in IEEE prior to entry in the 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 Student 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 is a limited number of participation from student branches in the Area contest then a student branch may enter more than one paper for the Area 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 entry would be accepted in the Area or Regional contest without the prior approval and certification of the Branch Counselor.

C. Prizes and Travel Expenses

1. The prize levels for both the Student Design Contest are:

First Prize	\$750
Second Prize	\$500
Third Prize	\$250
2. Additional prize money may be made available at the option of the Chairman of each contest.
3. Co-authors shall share equally in the allocation of cash awards.

D. Subject Matter

1. The contest entry 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. Oral presentation should be given by slides such as PowerPoint or other programs. Presentation should include specifications, schedules, design analysis and a working prototype.
3. The work should 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 typed, double spaced on one side only of eight and one-half by eleven inch paper.
2. The pages of the paper must be numbered consecutively. The Introduction, Body, Conclusion, Tables, and Diagrams may not exceed 15 pages (20 pages with the Appendices.)
3. In general, the contents of a Student paper shall be organized as follows:
 - (1) Removable cover page: For IEEE record keeping it is required that a removable cover page would be provided that includes: The title, name of the author(s), school and Branch Counselor's name, author's IEEE member number, and author's current address.
 - (2) Title page: The title should consist of the minimum number of key words necessary to portray accurately the contents of the paper. The title as well as the author's name and affiliation should appear on the title page.

- (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 summary of the problem or objective and 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: 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. 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. Figures should be distributed through the article as it relates to the subject covered.

(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:

f For a periodical: R.N. Hall, Power Rectifiers and transformers, Proc. IRE, Vol. 40, pp. 1515-1518, November 1952.

f For a book: W.A. Edison, Vacuum Tube Oscillators, John Wiley and Sons, Inc., New York, New York, pp. 170-171, 1948.

f 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.

F. Oral Presentation

- 1 Fifteen (15) minutes shall be allotted for the oral presentation as well as prototype demonstration 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 ten (10) minutes to warn the start of the prototype demonstration.
 - (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. PowerPoint slides shall be used for the concept presentation.
5. Each contestant is responsible for making arrangements with the paper contest chairman for audio-visual equipment if needed.

G. Judging

1. Each team presentation will be evaluated and judged on the basis of ten equally weighted judging criteria.
2. There shall be three (3) to seven (7) judges.
3. 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 contest.
4. The judges should have a record of experience in written and oral communication skills.

Design Contest Judging Criteria

Judging Criteria (10 points for each category, total: 100 points)

	Criterion	Points (maximum 10 points)	Remarks
1	Concise, informative abstract, adequacy of introduction, Logical development and analytical treatment in the body, adequacy of conclusion.		
2	Clarity and direction in exposition, Grammar, spelling, style, and choice of words.		
3	Originality of ideas.		
4	Quality and level of technical content.		
5	Factual and technical accuracy.		
6	Oral presentation organization and logical development.		
7	Poise/eye contact, grammar, fluency, choice of words.		
8	Elegance of design and construction of the prototype. Utilization of current technologies.		
9	Benefit to society.		
10	Completeness of the project.		
Total			