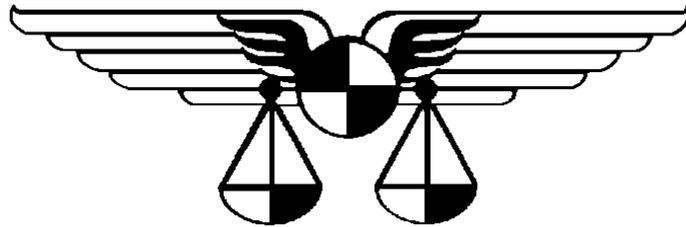


Society of Allied Weight Engineers, Incorporated

Serving the Aerospace - Shipbuilding - Land Vehicle and Allied Industries



INSTRUCTIONS TO STUDENT AUTHORS

OF

SAWE TECHNICAL PAPERS

FOR THE

80th Annual International Conference on Mass Properties

May 22 - 27, 2020

Cocoa Beach, Florida

(Revised 22 September 2020)

www.sawe.org

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ABSTRACT

These instructions provide information you need to prepare a technical paper and present it at the SAWE Annual International Conference. It is suggested that **ALL student authors** read this entire document to be familiar with any changes or updates to our process. The instructions are organized in six parts:

1. Timetable and points of contact for authors
2. Required format for a technical paper
3. Things to consider while writing a technical paper
4. Preparing for the conference
5. Guidance for clear writing (Appendix A)
6. Best Student Paper Awards (Appendix B)

Part 1, the timetable and points of contact, is specific to this year's conference and your point of contact in the Society. Your point of contact in the Society has the official title of Vice President - Technical Director (VP-TD). Parts 2-6 are generic. They apply to any author participating in any SAWE conference.

For additional informational on the Annual International Conference go to the SAWE website at www.sawe.org.

Good luck with your paper!

CALENDAR OF EVENTS FOR SAWE STUDENT AUTHORS

80th Annual International Conference on Mass Properties

May 22-27, 2021

Cocoa Beach, Florida

- September 2020 SAWE issues the Student Call for Papers for the 2021 international conference.
- Sep - Dec 2020 Tell the Vice President – Technical Director (VP-TD) that you intend to write a paper for the conference. Give him your paper title and a preliminary abstract if possible.
- Jan. 2021 The Vice President – Technical Director will begin assigning authors their SAWE Paper and category numbers (see Figure 1) as the papers become available.
- Feb. 2021 Conference Announcement and registration materials are available online. When you receive your material, complete the registration on-line as noted in the announcement instructions. **All attending authors MUST register for the conference.**
- 7 Mar 2021 Your final abstract and biography should be in the Technical Director’s hands, if possible, for use in assigning your paper to a conference technical track.
- 19 April 2021 Forward one copy of your finished paper to the Vice President – Technical Director (**an electronic copy is required, 1) PDF for judging and official purposes and 2) Microsoft Word® format for publication in SAWE journal**). The VP-TD will create a PDF copy if the author is unable to do so. You **must** meet this date to be eligible for the Best Paper Awards. Make sure you include a short biography of yourself in the paper as it will be used to introduce you at your track. *Notify VP-TD of your audio-visual/computer equipment needs for presenting the paper.*
E-mail: robert.zimmerman@sawe.org
Or submit your paper to the SAWE website using the following URL:
<https://www.sawe.org/technical/papers/submittal>
- 23 May 2021 Hotel Check-in, Conference Registration, Evening conference opening reception, where you can meet your track co-chairs.
- 24-26 May 2021
Group photographs will be taken just prior to scheduled session/track for all chairman and presenters. Please attend this event to assist in the taking of group photographs and the final planning of the day’s schedule.
For additional information contact the Vice President – Technical Director:
Robert Zimmerman Home: 1-303-838-6641
Mobile: 1-720-499-7115
E-mail: robert.zimmerman@sawe.org

NOTE: Most dates above are “no-later-than” dates. Papers and materials received **BEFORE** the deadlines are appreciated.

REQUIRED FORMAT FOR A SAWE TECHNICAL PAPER

Content

The Society of Allied Weight Engineers, Inc. is an international organization with members around the world. Foreign nationals will be attending our conferences and/or will have access to your paper as members of our Society. Papers ***cannot*** include nor be accepted with information that is controlled or restricted by **International Traffic in Arms Regulations (ITAR)** or **Export Administration Regulations (EAR)**. The SAWE does not allow disclaimers on the cover page that the paper does contain such information and distribution must be restricted. Additionally, disclaimers on the cover page that the paper does NOT contain such information cannot be accepted without a separate release form for verification and publication (see pages 8 and 9, and see the SAWE website to download a release form). It is the responsibility of the author, ***not*** the SAWE, to control the information presented in the paper and its associated conference presentation. Private authors whose work is solely their own, and are not writing as an employee of any public company, government agency, or institute of higher education, should so state on their release form.

Physical Size

Prepare your paper sized for standard 8½ x 11-inch (216 x 279 mm) paper, to ensure the paper can be printed by all members as desired. The use of nonstandard sizes is discouraged. If you must use a nonstandard size, ensure that all printed material lies within an 8½ x 11-inch (216 x 279 mm) envelope. *Printing hard copies is optional and is the responsibility of the author.*

For hard copies of papers, in the interest of conserving weight, cost, and filing space, it is necessary that both sides of each page be printed. Exceptions would be special charts, photographs, or drawings.

Binding

Keep binding simple – a staple at the left top corner is adequate. Do not use spiral or plastic binding; this causes handling and storage problems.

Cover Page

Your cover page must conform to the example provided in Figure 1. It includes the name of the Society, the assigned paper number, the category number(s), title, author's name, and University. The conference number, city, dates, the Society address and disclaimer are also required.

The paper number and category number(s) will be assigned by the VP-TD as noted in the calendar of events on page one. You may suggest an applicable category or categories from Table 1 that best describes your subject matter when you submit your abstract. *Up to two (2) categories are permissible.* If you are unsure which category fits best, your Track Co-chairmen and/or the Vice President – Technical Director can assist you with this. The conference number, city, and dates are indicated in the sample cover on page 4.

The cover should be of white paper and 8½ x 11 inch (216 x 279 mm) in size. A heavy cover is not acceptable.

Page Formatting and Layout

Technical papers represent the SAWE as well as the author. For that reason, papers will be judged on the physical look, layout, and format of the paper as well as their technical content. A clean, professional look is encouraged to enhance the visual appeal and readability of the paper.

Observe consistent margins and paragraph justifications throughout the paper. Suggested margins are a 0.75-inch (19-mm) margin on the left, right, and bottom of the page, and a 1.0-inch (25-mm) margin at the top of the page for the first written line. Page numbers should be used and centered between the right and left margins and located 0.75 in (19 mm) from the bottom of the page. The first page does not need to be numbered.

You may present charts, graphs, and pictures in the form most convenient for you. Observe consistent figure and table numbers and clear titles. Since most readers will have access to color copiers or printers, the use of color in your paper is acceptable and encouraged.

Some authors like to use a 2-column format for the text of their paper. If doing so, please ensure the font size makes the paper easily readable. A 12-point font is suggested. Also, if you use columns, all graphics and pictures should be sized to the full-page width to assist with understanding text, labels, etc.

Table of Contents

If your paper exceeds ten pages or five definitive sections, a Table of Contents is an aid to the interested reader.

Use of Footnotes

The use of references adds credence to your work and may guide the reader to related work on the topic. Typical footnotes and references to other documents are provided in Figure 2.

Appendices

Use appendices for case studies, lengthy computer output or flow charts, photo sequences with descriptions, or other such backup information. This avoids interrupting a train of thought that you may be building in the main body of the paper.

Dual Unit Usage

The Board of Directors has directed that all technical papers be prepared using two measuring systems. The primary system is the Inch-Pound Units System; the secondary is the Metric System – International System of Units (SI).

Biography

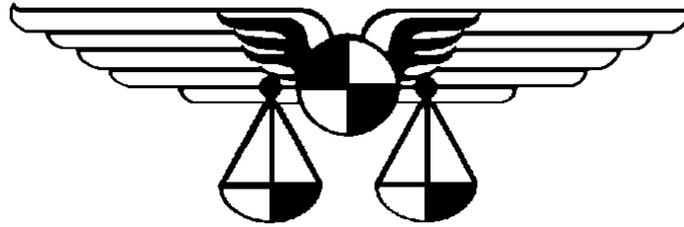
A short biography should be included at the beginning or end of your paper to provide the reader an understanding of your background. It will also aid your track co-chairman in introducing you for your presentation. The information should include your education, major, any internships, and any other papers presented. This helps the reader understand your background to discuss the topic of the paper.

Abstract

Include your abstract at the front of the paper as an introduction of the subject.

FIGURE 1. Sample Cover Page

SAWE Paper No. S1234
Category No. XX
Category No. YY



MASS PROPERTIES REPORTING
John Doe
The Smith College of Engineering
University of Antartica

For Presentation at the
**80th SAWE International Conference
on Mass Properties Engineering**
May 22-27, 2021

Cocoa Beach, Florida

Permission to publish this paper in full or in part, with credit to the author and the Society, may be obtained by request to:

Society of Allied Weight Engineers, Inc.
375 Redondo Ave Unit #624
Long Beach, CA 90814

The Society is not responsible for statements or opinions in papers or discussions at the meeting.
This paper meets all regulations for public information disclosure under ITAR and EAR.

Note: A copy of the official SAWE wings logo is available on the SAWE website (www.sawe.org).

TABLE 1. SAWE Publications and Technical Paper Categories

Category No.	Category Title
1.....	Aircraft Loading - General
2.....	Aircraft Loading - Payload
3.....	Center of Gravity
4.....	Electrical Transducers
5.....	Inertia Calculations
6.....	Inertia Measurement
7.....	Section Properties
8.....	Weighing
9.....	Weighing Equipment
10.....	Aircraft Design
11.....	Aircraft Estimation
12.....	Computer Applications
13.....	Marine Design
14.....	Missile Design
15.....	Missile Estimation
16.....	Organization
17.....	Procedures
18.....	Spacecraft Design
19.....	Spacecraft Estimation
20.....	Specific Design
21.....	Statistical Studies
22.....	Structural Design
23.....	Structural Estimation
24.....	System Design
25.....	System Estimation
26.....	Weight Growth
27.....	Weight Reduction - Materials
28.....	Weight Reduction - Processes
29.....	Weight Value-of-a-Pound
30.....	Miscellaneous
31.....	Surface Transportation
32.....	Product of Inertia Measurement
33.....	Unmanned Vehicles
34.....	Advanced Design
35.....	Offshore Design

References in the text should be numbered in brackets (e.g., “. . . as proved by Jones [1].”), and listed at the end of the paper in numerical sequence. See Figure 2 for examples of the correct style for listing references.

Underlining is an acceptable substitute for Italics.

An author's name should be cited in the same form in which it appears on the title page of a book or article. If a book or article has two authors, only the first named author should be reversed as shown in the example reference [4] below. If more than two authors, use the form: Jones, A. B., John Doe and W.T. Door . . . etc.

A bibliography may be used in lieu of references. Where the former is used, the same style as for references applies except that a bibliography is merely a list of material or publications pertinent to the manuscript's subject. The names of authors should be arranged alphabetically within a reference.

FIGURE 2. Sample Footnotes and References

- [1] Anonymous, Style Manual, Revised Edition. Washington, D.C., US Government Printing Office, 1945.
- [2] Boyle, Richard, "USS X-1 Power Plant, 1956-57", Naval Engineers Journal, Vol. 84 No. 2 (1972) pp. 42-50.
- [3] Shoemaker, W.B., Jr., "Nanosecond R-F Pulses for Waveguide Fault-finding," Thesis for M.S. degree in Electrical Engineering, US Naval Postgraduate School, Monterey, CA, September 1968.
- [4] Dudley, Darle W., Practical Gear Design, New York, NY, McGraw-Hill Book Company, Inc., 1954.
- [5] NAVSEA Technical Manual 0905-475-2010 Naval Distillate Fuel Conservation Program Handbook, Washington, D.C., Dept. of the Navy, February 1971.
- [6] Jordan, Richard D. and Marion J. Edwards, Aids to Technical Writing, Bulletin No. 21, Vol. 47, No. 24. Minneapolis, Minn., University of Minnesota Experimental Station, 1944.

COPYRIGHT RELEASE FOR SAWE TECHNICAL PAPERS

All technical papers presented and/or distributed at SAWE international conferences become part of the permanent technical library of the Society, and are retained by the Society for sale to both members and non-members who may have interest in them. For this reason, a copyright release form ***must*** accompany every paper. This will not give the SAWE the right to alter or change any paper, but is necessary to allow us to sell or distribute the paper under our name, with full credit to the author and their company. This form also approves the release of the paper by the author's parent company, agency or school/organization and verifies that it contains no restricted or protected information under ITAR/EAR regulations. Note that some entities may elect to retain the copyright to a paper in their name, but give the SAWE license to publish it as part of our library. Authors writing privately, whose work represents only themselves and their own ideas, should also fill out a release form stating such.

A sample of the release form currently used by the SAWE for these purposes is given on the next two pages. A copy of the actual form may be downloaded from the Society website at (<https://www.sawe.org/technical/papers/instructions>). Contact the VP-TD or Executive Director of the Society for questions or assistance with using this form.



COPYRIGHT TRANSFER/RELEASE FORM

*Society of Allied Weight Engineers, Inc.
375 Redondo Ave Unit #624
Long Beach, CA 90814*

Please return form to:
SAWE, Inc.
Vice President - Technical Director
Robert Zimmerman
76 Spring Drive
Pine, Colorado 80470
USA
Phone: 1-303-838-6641

Paper Title: _____

Paper #: _____ Meeting: _____

PAPER RELEASE CLEARANCE

(Check the box for the applicable statement below)

This work is UNCLASSIFIED and has been cleared and approved for public release by the appropriate company and/or government agencies.

or

This work is UNCLASSIFIED and is entirely the author's own effort, representing no other public company, entity or government agency. It reflects information freely available in the public domain, and the author approves its release.

Signature of Author: _____ Date: _____

COPYRIGHT TRANSFER

In consideration of acceptance of the Paper for publication, I hereby assign and transfer to the Society of Allied Weight Engineers, Inc. (SAWE) all rights, title, and interest in the Paper including any and all copyrights therein.

The Society of Allied Weights Engineers, Inc. hereby grants to the Author and, in the case of a work made for hire, their employer, a nonexclusive, royalty-free license to use, reproduce, and distribute the Paper, including the right to sublicense such rights, provided that each copy will include the copyright notice appearing on the published paper.

Note: The above assignment of the copyright does not apply to officers or employees of the United States Government who prepared the Paper as part of their official duties.



COPYRIGHT TRANSFER

I certify that I have the authority to transfer these rights on behalf of myself and/or my employer.

Signature of Author: _____ **Date:** _____

Only one signature is required for joint authors and guarantees that all authors agree to the terms set forth herein.

Contact Information:

Author's Name: _____

Address: _____

Phone: _____ Fax: _____

E-Mail _____

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For special situations in which the author or his/her organization wishes to retain the copyright in their name, SAWE requires a license to publish the work. The Copyright Release Notice or Assignment of Release should be used for this purpose.

Copyright Release Notice or Assignment of Release:

I hereby license SAWE to publish this work and to use it for all of the SAWE's current and future electronic uses, with due credit to me and to my university.

Signature of Author or Other Copyright Owner

Organization

Date

THINGS TO CONSIDER WHILE WRITING A TECHNICAL PAPER

There will be only a limited number of people who will actually see your presentation at the conference. All others will only be able to obtain the information by reading the paper. Also, **awards** for technical papers **are based on** the judges' assessments of **the written word exclusively**. Although most authors are familiar with the basic principles of technical writing, it is often worthwhile to review several points. The following suggestions are provided to help you get better reception for your paper.

Technical Content

It is helpful to remember that the SAWE will be including your paper as part of its technical library, and has a vested interest in seeing that it is a sound technical presentation. Your paper will be representing the SAWE as well as you and your school to future readers. For that reason, technical content will cover up to 50% of a paper's score in the best student paper judging,

Give Serious Thought to Selection of the Paper Title

A short and snappy title is easier to read and remember than a long and elegant one, but don't make it "cute". The title should suggest the main topic and conclusion or point of the paper. Orient your title toward action if possible and be certain it is appropriate to the subject. People who are looking for papers on a particular subject as part of background research, or are deciding which presentations to attend at the conference, will be going pretty much solely by the paper title.

Make Full Use of the Abstract and/or Summary

The abstract or summary should be informative. Make the subject inviting, so that the reader will want to know more and read the rest of your paper. It is often the deciding factor for others to read your paper. It should be complete and concise. It should include the objective, approach, significant aspects or results, recommendations, limitations, and potential applications of your subject matter. About 250 words would be the minimum length, but never write an abstract or summary longer than one page. Also do not include figures or graphics in the abstract.

Make the Paper Readable

Use plain English. Stay away from acronyms when possible. An alphabet soup of technical abbreviations, program and organizational initials will restrict the understanding of your work to a smaller audience. See the Flesch Reading Ease Test in Appendix A for more information. All acronyms or abbreviations should be compiled in a List of Acronyms following the Table of Contents at the beginning of the paper.

Remember that length is not a measure of merit. Cover the subject in sufficient detail to make your points or conclusions, but don't drag out the topic. Readability and concise page usage will help both your reader as well as the technical committee who will score your paper.

Give some thought to the efficient construction of your paper so as to avoid redundancy or cross-references. A good and commonly used structure is a three-part document. This structure starts with the thesis or premise statement, has a mid-section to establish the argument, findings or credibility of the statement, and finishes with conclusions and recommendations.

One good way to start writing a paper is from the back. Write the conclusion first and then develop the structural outline leading to that conclusion. If proper thought is given to developing the outline, the rest is easy.

Use Illustrations Effectively

Graphics, pictures and illustrations can be used for several purposes: to "save a thousand words" (or more), to dramatize a point, to reinforce written words in the reader's mind, to entertain, and to provide visual relief to the reader.

Any illustrations should supplement the written word, not repeat the thought. Discussion of an illustration should tell what it is and deal with the meaning of its contents. If too many words are dedicated to explaining how the illustration was developed, or why or how it works, then perhaps you should find a different way to make your point. Tables, graphs, charts and plans are not inherently good or helpful; they must be appropriate to the message and integrated with the text.

When an illustration is used, pay attention to the graphic quality as it will appear in your paper. Tiny text or blurred lines at important intersections can only detract from the real message you are sending and cast doubt on its credibility. The best thing to do with a poor-quality illustration is to omit it.

If necessary, a graphic can be included on an oversized foldout page. Using such an approach will allow you to include the graphic with sufficient legibility to be read and understood, and it will not interrupt the flow of the text in the paper. For the electronic paper, a different page size/orientation can be inserted as a new section.

Visual aids to be used in the actual presentation of the paper are addressed under "Visual Aid Presentation" on page 12.

PREPARING FOR THE CONFERENCE

Author Biography

Please send your biography to the SAWE VP-TD for introduction purposes by the deadline identified in the Calendar of Events on page one of this document.

Presentation Aids

A podium or chart pointer may or may not be available for you during your presentation. Check with the VP-TD for the meeting room setup. However, a laptop computer and projector will be supplied for each meeting room. (See *Visual Aid Handling* below.) You may also use videotapes or DVDs to enhance your presentation, but please note the following instructions.

Please notify your Track Co-chairman **before** the deadline identified in the Calendar of Events on page one of this document of **all** your presentation equipment requirements, especially if they are **non-standard**. Requests for non-standard equipment that are received at the Conference will be honored only if such equipment is available on-site, and could incur an equipment rental fee.

Visual Aid Handling

It is the author's responsibility to supply their own conference presentation on a thumb drive or CD at the conference. A primary copy and a separate backup copy are suggested. The author should get his or her electronic presentation to the VP-TD, Track Co-chairmen and/or Host Facilities Chairman well prior to the track meeting (prior to the conference if possible) so that it may be pre-loaded on a laptop computer. All electronic presentations should be Microsoft Office-compatible, unless you make prior arrangements to supply your own laptop with specialized software, and any video content **MUST** be compatible with U.S. equipment standards. Any drives, CDs, or DVDs should indicate as a minimum the name of the paper and author.

The Track Co-chairmen are available to run the laptop during the presentation, but the author may also do it themselves if desired.

Registration

Authors attending the conference **must** register for the Conference. All conference badges are processed through our registration system, and badges are required to access all meetings and conference venues.

Please be sure to contact your Track Co-chairman as soon as possible after your arrival. (The hotel desk or conference registration desk can assist with this.) The Sunday evening Conference Opening Reception is especially useful for this.

Authors' Reception

Group photographs will be taken 10 minutes prior to the beginning of the assigned session/track for all attending authors, presenters, and track co-chairmen. It is important that **all** attending session authors and presenters attend this event. This will allow for a final meeting with your Track Co-chairmen and coordinating the final track schedule, as well as preparations for introductions and questions before the track presentations.

All authors, presenters, and co-chairs must attend this event.

Presentation

You should realize that your appearance and grooming will set the initial tone of your presentation, even before you begin to talk. You should therefore avoid clothing that distracts audience attention from the subject at hand. Even if your audience is dressed casually, taking the time to dress in formal business wear will show respect for your audience.

You will be introduced by one of the Track Co-chairman and will approach the podium or head of the room at the end of the introduction. Each presentation is expected to last about **25-30 minutes**, including time for questions and answers. Longer presentations must be arranged through one of your Co-chairmen to be coordinated with the overall schedule for the day.

Any presentation, whether technical in nature or not, should focus on the same primary information. Note that the first two points can and will be part of your biography, but a personal recap of any pertinent points will be useful in acquainting yourself with the audience.

- Who am I?
 - Help the audience get to know you personally, so they will more readily listen to you.
- What is my area of emphasis?
 - This helps explain your expertise to address the subject matter.
 - Instead of just being a student at XYZ University, it will be more helpful to note, for example, you're an aerospace engineering major with emphasis in aircraft design and weight control.
 - Relevant previous or current classes you have taken can also help.
- What am I going to talk about?
 - Prime the audience for presenting your main subject matter.
 - Follows the rule of thumb for constructing either a paper or presentation: tell the audience what you're going to tell them (introduction), tell it to them (presentation), and then tell them what you told them (review or summary).
- Why should you care?
 - What is it that you are going to do for the audience?
 - What background or unique information do you have that will make the presentation worth the audience's time?

In any presentation, remember that you are the “star”. The audience came to hear you, not read charts. Presentation charts should not contain so much text that they essentially reproduce the paper, or become a stand-alone discussion that anyone could read and understand without your accompanying talk. Instead, charts should present minimal talking points that your verbal presentation will expand on. The actual paper will remain as the permanent written record of your work.

Even if you are not used to or are uncomfortable with public speaking, try to present an “open” posture and demeanor when addressing your audience. Don’t put your hands in your pockets or cross your arms over your chest. Don’t stand behind anything, whether a podium or even a table that holds the laptop/projector. You can keep your notes at a podium or table, and return there to refer to them, but otherwise be out and available to the audience. One of the Track Co-chairs can run the laptop, so you don’t have to monitor it. Don’t stand off to the side as if you are unimportant. As long as you are not blocking the screen or are in the beam of the projector, stand in a prominent place where you can be seen and heard. Use hand gestures and body language to accentuate important points. Be relaxed and natural, rather than projecting a stiff – some might say boring – “official” presentation manner. While you should not tell jokes – and ignore the oft-repeated “rule” to open with one – natural humor can help relax your audience and keep them engaged in your presentation.

As a general rule, a projected chart, other than the title chart, requires about two minutes of discussion. On this basis, you should present between 10 and 15 charts. Reading the chart text aloud is tedious, as the audience can do that for themselves. It is much more interesting to the audience to use the presented bullets to support a discussion of the highlights and more interesting aspects of the paper. The listener will likely have the paper in hand as you discuss it and/or can read it at another time. Also, try to become familiar with your presentation so you can spend more time looking at the audience, rather than at the projection screen to reference your charts. Having printed notes to refer to for each chart may help.

Presentations of papers will likely involve questions. Either the presenter or co-chairmen may initiate the question period. Question periods should last three to five minutes. The co-chairmen will limit the length of the question period to accommodate the track schedule.

Visual Aid Presentation

The purpose of a visual aid is to help the audience understand you as a speaker. Visual aids can be used to increase the speed of perception because two senses (vision and hearing) are used as receptors instead of just one. People can simultaneously absorb a visual message that is different from one they hear. In the limited time frame of a technical presentation, this ability in an audience can be of great help to the speaker as well. Given that your audience has this ability, there are some rules that you should follow:

- a. Use the verbal message to enrich each visual aid with details or subtleties that may otherwise take the viewer some time to realize. This heightens both audio and visual interest. *Don't* read visual aids – the audience can do that.
- b. Pick visual aids carefully.
 1. Graphics from a paper may not be suitable for visual aids in a presentation due to the size of print, weight of line, or complexity of the figure. Making slides or viewgraphs from the printed page is very easy but must be done with consideration of both the message and the viewing audience. An audience should not be subjected to confusing, unreadable or unrelated visual aids.
 2. Your speech should lead the visual aids. If the speaker continually checks on the visual aid before talking, it conveys the impression to the audience that they are attending a slide show instead of a dissertation. Text should not be used to outline your talk.

- c. Think of visual aids as posters. A simple poster is easily seen and quickly read by the entire audience.
- d. Use color where it helps, but color is definitely not a trade-off for simplicity.

Evaluation Copies

Send one electronic copy of your technical paper to the Vice President – Technical Director to be judged for the Best Student Paper Awards. Please remember that paper judging is a pre-planned operation. Therefore, **you must meet the deadline** identified in the Calendar of Events on page one of this document. Papers received after that date will still be accepted for presentation and distribution, but will not be eligible for an award. Also, papers are required to be compiled for posting to the SAWE website, which will contain a copy of all papers presented at the conference. The time it takes to compile and post the papers sets the paper submittal deadline.

The easiest way to submit an electronic paper copy is by e-mail. If the size of the paper (5 Mb or more) precludes this, the paper may be supplied on a CD, thumbdrive, or other commonly used electronic media. Please ship the media to the address shown on page one. All submitted copies **must be received** by the Vice President – Technical Director and/or your Track Chairman by **19 April 2021** to be considered for the Best Student Paper Awards.

Please supply the paper in a PDF format (such as from Adobe Acrobat[®]) and a form compatible with the Microsoft Word[®] word processor. We retain Word copies of all papers for future publication purposes in our Society journal. The Vice President – Technical Director will translate your paper into a PDF file (if you are unable) prior to releasing it to be compiled for the conference. If supplied via PDF, the MS Word version (due to trouble with sending large file sizes) may be supplied later or brought to the conference on CD or memory stick for transfer to the VP-TD. However, at least one file type (PDF or Word) must be supplied to the VP-TD and/or Track Chairman by the above-mentioned deadline date to be eligible for best paper judging.

Paper Copies

Printing of paper copies for distribution at the conference is optional. These may be presented to attendees at your session. If you decide to bring printed copies of your presentation to the conference, do not give these to the Conference Registration Desk, but please bring them with you to your technical track meeting. A table will be supplied to place them on.

The SAWE is not prepared to fund reproduction of papers. Authors should be prepared to pay for any copies to be distributed themselves.

APPENDIX A GUIDANCE FOR CLEAR WRITING

The following section is presented as a guide to assist the author who may be new to technical writing. It is intended as reference only, and is not intended to have the author doing copious counting and analyzing of words.

TO MAKE YOUR PAPER EASY TO READ

1. Look at your sentences; measure them against a 17-word standard. If longer, look for the joints in their construction and break them into smaller pieces until they are of the right average length.

"Since the Federal and industrial scientific manpower shortage must not be alleviated at the expense of the University teaching staffs whose task it is to turn out fresh talent, the laboratories must themselves place still greater emphasis upon the scientific aspects of their personnel development programs, and must do so in cooperation with our academic institutions."

56 words, 107 syllables

"The Federal and industrial scientific manpower shortage must not be alleviated at the expense of the University teaching staffs. Their task is to turn out fresh talent. So the laboratories must themselves place still greater emphasis upon the scientific aspects of their personnel development programs. They must do so in cooperation with our academic institutions."

55 words, 13.75 average, 107 syllables

2. Translate complex words into simple, short root words.

"The shortage of scientists in government and industry must not be made up at the expense of University teaching staffs. Their task is to train new talent. The laboratories must themselves place still more stress on the scientific side of their training programs. In doing so they must work with our universities."

52 words, 82 syllables

3. Avoid passive verbs; make somebody do something!

"We in government and industry must not make up for our shortage of scientists by raiding University staffs. They train our new talent. In our laboratories we must push forward the scientific side of our training programs. We must work with our universities."

44 words, 63 syllables

- Don't try to save a sentence by sticking one comment into another. Two sentences are easier to understand than one long one packed with extra stuffing.

". . . at the expense of University teaching staffs whose task it is to turn out fresh talent, the laboratories must . . ."

- Cut down on "empty" words – prepositions, conjunctions, adverbs, etc. In general, one "empty" word is better than two or three; a short one is better than a long one. If you can get rid of the "empty" word altogether, so much the better.

To help keep your writing succinct, try to avoid using such phrases as:

along the lines of.....	instead of.....	like
	as to.....	"about
for the purpose of.....	"	for
for the reason that.....	"	since
from the point of view of.....	"	for
inasmuch as.....	"	since
in favor of.....	"	for, to
in order to.....	"	to
in accordance with.....	"	by, under
in the case of.....	"	if
in the event that.....	"	if
in the nature of.....	"	like
in the neighborhood of.....	"	about
on the basis of.....	"	by
on the grounds that.....	"	since, because
prior to.....	"	before
with a view to.....	"	to
with reference to.....	"	about
with regard to.....	"	about
with the result that.....	"	so that
accordingly.....	"	so
consequently.....	"	so
for this reason.....	"	so
furthermore.....	"	then
hence.....	"	so
likewise.....	"	and
more specifically.....	"	for instance

- Renew your acquaintance with some unfamiliar punctuation marks – hyphens, colons, semi-colons, dashes, question marks. This can help avoid awkward wording or paragraph structures which may reduce your paper's score.

APPENDIX B

BEST STUDENT PAPER AWARDS

Student papers are eligible for cash awards. Three cash awards of \$1000, \$750, and \$500 may be presented to the authors of the top three student papers as determined by the conference Technical Committee, which includes the Academic Committee Chair. In all other respects, student papers are judged according to the same criteria as the Conference Best Paper award as shown below:

Papers will be judged for utility, clarity, and originality. The following factors will be used as a guide by the Technical Committee in the selection of the best student paper: Each factor may be worth up to the indicated point value, allowing for a maximum possible score of 100 points.

- a. Technical Content
 1. Validity of approach and reasoning. (25 points)
 2. Consideration of all major factors. (25 points)
- b. Relevance and Significance
 1. Immediate usefulness to engineers in the mass properties field. (5 points)
 2. Value as a reference for future applications. (10 points)
 3. Relative significance or degree of impact to the profession. (10 points)
 4. Value to engineers outside the mass properties field. (5 points)
- c. Clarity and Logical Development
 1. Information presented in a logical, readily understandable manner. (5 points)
 2. Paper meets reasonable standards of organization, grammar, and neatness. (5 points)
- d. Originality
 1. Freshness of approach. (5 points)
 2. New concept or application. (5 points)

Awards for student papers **are based on** the judges' assessments of **the written word exclusively**. Significant deviations from these "Instructions to Authors" may be sufficient cause to exclude a paper from consideration for the best paper.

All student authors presenting papers at SAWE technical conferences will receive a certificate of achievement denoting their paper, complimentary copies of the Weight Engineers Handbook and the weight engineering textbook of their choice (aircraft or marine), and complimentary tickets to the conference Sunday evening reception, Standards and Practices Luncheon, and Awards Banquet. Other perquisites may be given at the discretion of the Vice President – Technical Director.

Student authors who submit a paper to the SAWE but are unable to attend to present the paper will receive a certificate of achievement denoting their paper, a complimentary copy of the Weight Engineers Handbook. They shall not receive other complimentary perquisites unless the Vice President – Technical Director, due to extenuating circumstances, deems them appropriate. Note that if a school or university is sending a multi-student team to the conference to present a paper, they may be asked to help support the cost of meals or other fees involved with the students' attendance.