ECE Writing Style Guide

All organizations have specifications for official correspondence, memoranda, and reports. In the ECE courses with Writing Flags (EE 333T, EE 364D/E, and EE 464H/K/S), we have adopted standards for all written work. Such standards including document formatting, proper referencing of research sources, and basics of style and Mechanics. The following is a brief table of contents to help students locate relevant information:

1.0 STANDARD REFERENCE WORKS

In large part, ECE style will rely on two authoritative reference works:

Merriam-Webster's Collegiate Dictionary (11th ed) — for proper spelling and word meaning
The Chicago Manual of Style (15th ed) — for grammar, mechanics, and style

Note: Both reference works are available in the library and online.

The rest of this document provides additional guidelines specific to ECE or to standard engineering communication practice. **When you see a conflict between either of the above reference and the guidelines in this document, always follow the latter.**

2.0 FORMATTING

The following are standard document formatting guidelines. These standards may differ from those you have seen elsewhere as a student or intern, but you will find in your career that every organization sets its own standards.

2.1 General Formatting

The following are general specifications for all printed documents. *Be sure to adhere to these specifications, and ask your TA or the instructor if anything is unclear.*

1. Use **12-point Times** or **Times New Roman** font
2. Provide **standard page numbering**: list the page number on all but the first page
3. Place page numbers, centered, at the bottom of the page and in the same font as the text
4. Use **1.5 spacing** (unless advised otherwise) **and 1-inch margins** (all sides)
5. Use **block paragraph** format: no indentation; paragraphs separated by one empty line
6. Do not justify the right margin
7. Secure each assignment by staple

Note: some individual assignments may have *alternate* specifications.

2.2 Memo Headings

Memos in this class will all use the following memo heading (content description in brackets):

DATE:	[Month xx, 20xx]
TO:	[Instructor's Name]
FROM:	[Your name]
SUBJECT:	[Brief but informative description of the memo subject, specific enough that your reader will not be confused.]

Format the memo heading in the following manner:

- Present the field titles (DATE, TO, FROM, SUBJECT) in **bold, all caps**.
- Tab the content out to a consistent point after the titles, creating two columns.
- Use 1.5 spacing *between* fields (i.e., "date," "to," "from," "subject")
- Use single-spacing *within* each field

Note: do *not* include the brackets in your memo heading.

2.3 Section Headings

There is no industry standard for document section headings, and your company or organization will likely have its own formatting. Use section headings for longer documents as a way to improve flow and organization for your reader. Most short memos do *not* need headings. We have established the following specifications for EE 333T and Senior Design:

- Leave one empty line (i.e., press *return* twice) between the text of the previous section and the heading of a new section. (You can maintain 1.5 spacing throughout.)
- Begin text on the line immediately following its heading.

- If a heading happens to fall on the last line of a page—separated from the text it heads—move it to the top of the next page.
- *First-level headings* should be formatted in **ALL-CAPS and BOLD**.
- *Second-level headings* should be formatted in **Initial Caps and Bold**.
- *Third-level headings* should be formatted in ***Initial Caps, Italics, and Bold***.
- *Fourth-level headings* should be formatted in *Italics*.

The following is an example of appropriate section formatting:

COMPANY LOCATIONS [First-Level Heading]

GizmoCorp maintains over thirty facilities throughout the country, many of these located in the Southwest. Five key locations–Austin, Texas; Phoenix, Arizona; Denver, Colorado; San Diego, California; and Boston, Massachusetts–are essential to the company's operations. Each of these sites maintains facilities for manufacturing as well as sales and marketing.

Austin, Texas [Second-Level Heading]

The company's corporate headquarters reside in Austin, Texas, where GizmoCorp produces its full line of home computing products. This location also houses the international marketing division, the national sales manager, and the offices of the CEO.

Manufacturing Plant **[Third-Level Heading]**

GizmoCorp's Austin plant is the primary manufacturer of the company's CPUs, printers, and storage devices.

CPU Production **[Fourth-Level Heading]**

Most units of the popular *Avalon* personal computer are manufactured in Austin, Texas, which has the capacity to produce 200 units a day. Fifty employees work three shifts….

2.4 Visual Aids

All graphics must be referenced in the text prior to their inclusion—do not include a graphic without context. If the graphic is not on the page on which you refer to it, tell the reader where it is (e.g., "Figure 1 on the next page"). References to the graphic must include some discussion or analysis of that graphic: tell the readers what they should see. Likewise, avoid presenting a full

page or more of solid graphics within the body of the report; all pages should to have some text to help break up the graphics. If you have a graphic that takes up the entire page, consider placing it in an appendix.

Always place a graphic at a natural breaking point in the text. The ideal placement is immediately *after* the paragraph in which you refer to the graphic. The alternative is to start the next paragraph and then place the graphic at the first opportunity on the next page. Avoid leaving a large block of white space at the bottom of the page; where feasible, allow the next paragraph to start. When you include the graphic in the main text, use conventions similar to those for paragraph placement—spacing before and after the graphic in order to help it stand out. You may need to modify the graphic to have it fit on the page and to allocate sufficient white space.

As you work, keep in mind that there are two different categories of graphics—tables and figures. They are numbered separately from one another, and they have different naming conventions. The following are examples of both to illustrate the differences.

As you can see on Table 1 on the next page, the title appears above the table, begins with "Table," a number, and a period, followed by a concise description of the subject, and it is centered. The entire title is in bold and takes initial caps. Separate the title from preceding text with an empty line (as with block paragraphs), and do the same between the bottom of the table and the subsequent text. Provide white space between the title and the table, but make it less than that between the title and the main text. Precise figures included in the table's contents are cited.

Table 1. Components for the Hat

Part	**Price**	**Availability**
Hat	$7.99 [2]	In stock
Sequins	$16.99 [3]	Back ordered; available 11/4
Figurine	$4.99 [4]	In stock
Astroturf	$2.99 [5]	In stock
Flowers	$6.99 [3]	In stock

Figure titles appear underneath figures, and both are centered. Again, the entire title is in bold and takes initial caps. Separate a figure from the preceding text with an empty line (as with block paragraphs), and do the same between the figure title and the subsequent text. Provide white space between figure and title, but make it less than that between the title and the main text. Figure 1 (next page) provides a citation for the diagram, which is taken from an outside source.

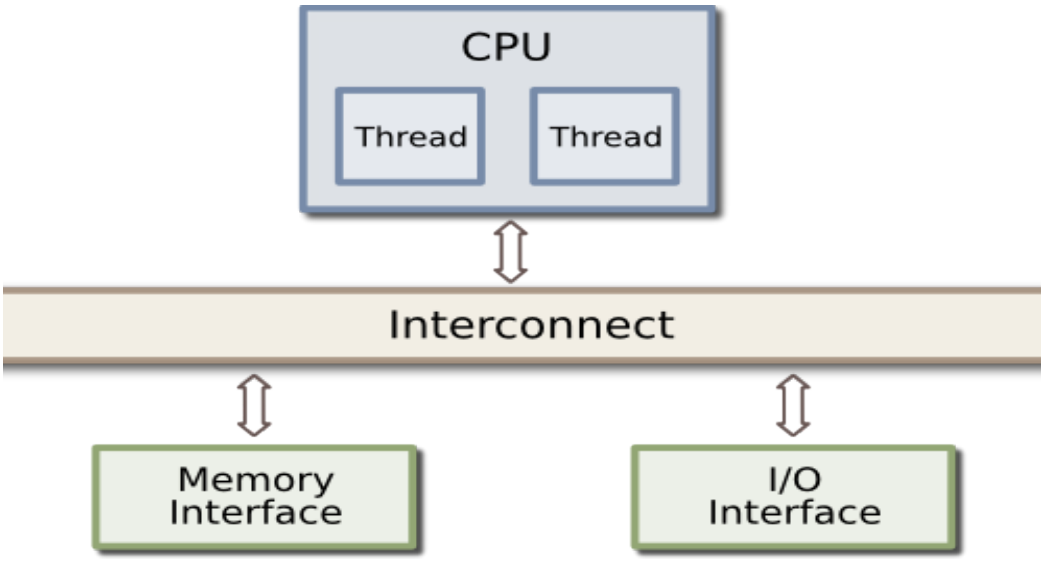
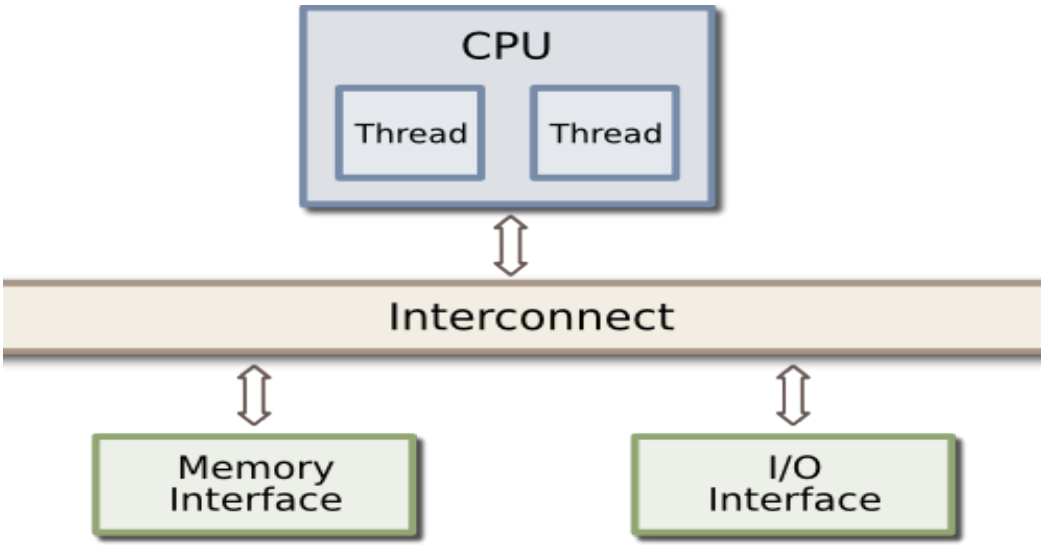


Figure 1. Block Diagram of a CPU [5]

If you were to include this figure in a presentation, however, you would provide a different type of label and citation. In presentations, the audience does not have the document to toggle between the graphic and the reference. In order to provide references for your material, you will cite graphics that you have taken from outside sources directly underneath the graphic. You can use a small font for the URL. You may also want to include a list of sources in IEEE format at the end presentation slides for reference.



Block Diagram of a CPU
[http://ozlabs.org/~jk/projects/lca2008-hackfest/]

2.5 Lists

Lists are set off from regular paragraph text but function as a continuation of the sentence and paragraph text that precedes them. The following list describes and demonstrates guidelines for including lists:

- Provide some introductory text for a list; at a minimum, your paragraph will need a topic sentence. See the *Chicago Manual of Style* for rules on when to use colons.
- Use a numbered list when the numbering serves a clear purpose, such as sequence, order of priority, or enumeration for later identification (e.g., "item 4 in the list above."). Otherwise, use a simple bullet list.
- Indent lists to improve readability.
- Keep list elements parallel in grammatical structure and function (as best as possible).

2.6 Equations

Like lists, equations are set off from the main paragraph text but act grammatically like sentence text within the paragraph. Set equations off from the regular paragraph text by leaving an empty line before and after the equation. Use a Center Tab to center the equation on the page, and set a separate tab to the right to list the equation number in parentheses. As with figures and tables, number equations separately. Italicize Roman symbols or characters but not Greek symbols, use an en-dash (–) rather than a hyphen (-) for the minus sign, and use the adjoining paragraph text to define symbols for the reader. Provide any punctuation at the end of the equation to match that equation's grammatical function in a sentence. For example,

$$a + c = \mu, \qquad (1)$$

where a is volume of apple in cm^2, c is grams of caramel, and μ is caramel apple flavor.

2.7 Appendixes

Appendixes usually hold material that is not necessary to understanding a report's basic message and may hold images that are too large for the body. In an appendix, you may include block diagrams, flow charts, Gantt charts, schematics, code, or any other diagrams, drawings, or photos that will add to a full technical understanding of your project; however, you should make each appendix a coherent whole, even if that means creating several appendixes, each with one item.

You MUST mention in your main text that you have an appendix and indicate what it contains (similar to the manner in which you refer to tables or figures). Refer to multiple appendixes by letters—that is, Appendix A, Appendix B, and so on. Like tables and figures, all appendixes must have clear and informative titles.

When you put information in an appendix, place a divider page at the end of the main document with the words "APPENDIX A," followed by a title for the appendix. All appendixes must have a descriptive title. Likewise, a second appendix will have a title sheet beginning with "APPENDIX B," and so on. Center those words approximately one-third of the way down from the top of the page. In memos, page numbering for appendixes continues the numbering from the main document. (**Note:** appendix page numbering for a formal document is different. You will see alternate instructions for this formatting in any relevant assignment description.)

3.0 DOCUMENTATION OF SOURCES

In this course, students will use the IEEE standard for documenting sources. Many different methods of documentation exist, including one in the *Chicago Manual of Style*, and none of these is necessarily more "correct" than another. Each is simply a standard that any given organization decides to follow, for the sake of consistency. Because some ECE students will eventually publish works in IEEE publications, the department uses the IEEE system, which consists of bracketed citations and a **REFERENCES** section at the end of each document. In addition to the information below, refer to Appendix A in this document for the IEEE Standards for citations.

3.1 Bracketed Citations

When citing sources in the text, adhere to the following rules:

1. In the body of your text, refer to the source of your information by inserting *consecutive* numbers in brackets at the end of each segment of cited information—like this [1]. The first reference in a document must be [1], followed by [2] and so on. If you come back to a source already used, you should use the number already established.
2. Reference numbers can also be inserted within a sentence [2], without changes to the sentence's punctuation. You may also cite your reference in your text thus: "As Smithsky [3] points out, …" Note that a space precedes the bracketed number.
3. The bracketed number always precedes any punctuation following the material being cited [5]. "As in this example, references at the end of quotation marks appear outside those marks, and the entire sentence is punctuated with a period after the reference listing" [6, p. 23].
4. Always use square brackets around reference numbers [7, pp. 78-85] to distinguish them from equation numbers, which appear in parentheses (8).
5. Unless you are referring to a complete book or article (or a web page), identify the page number(s) of your source of information. Indicate exact page numbers for a source within your brackets after a comma [9, pp. 3-6], or by a simple rhetorical device in your text such as "On page 59 of Broad [10], the author seems to contradict himself when he states…."
6. Once you have numbered a source, use the same number for all subsequent references to that source, differentiating with page numbers if necessary [8, p. 5].

3.2 Reference List

List all of the sources, in numerical order, in a Reference List immediately after the conclusion. In a memo, use the heading "**REFERENCES**" above list and make it the final body section of the document. In a formal report, use the heading "References" for the first element of the back matter). If you have created the list correctly, the numbers will correspond to the order in which works were first cited. The following are guidelines for that Reference List:

1. **Consult the document "IEEE Citation Reference"** (available in Canvas Writing Resources) **for the proper format for each individual source listing**.
2. List individual references in their numerical order using the number—again *in brackets*—that you used in your citations.

3. Tab entries appropriately to create two columns: one for reference numbers and one for source information.
4. Single-space *within* individual references, with the same indentation for additional lines.
5. Use 1.5 spacing *between* separate references.
6. End each entry with a period.
7. If you have referred to the same journal or book more than once in your paper, list that source only once on your reference page.
8. Be sure to cite journals or periodical sources found online using the periodical model or conference proceedings model rather than the web source model. *Links to search databases are not sources*.

The following is an example of a properly formatted reference list:

[1] M.A. Arbib, ed., *The Handbook of Brain Theory and Neural Networks*, MIT Press, 1998.

[2] D. Kornack and P. Rakic, "Cell Proliferation without Neurogenesis in Adult Primate Neocortex," *Science,* Dec. 2001, pp. 2127–2130.

[3] R. Bartle, "Early MUD History," Nov. 1990; http://www.ludd.luth.se/aber/mud-history.html.

[4] I.E. Sutherland et al., "A Characterization of 10 Hidden-Surface Algorithms," *ACM Computing Surveys,* Mar. 1974, pp. 1–55.

[5] A.J. Albrecht, "Measuring Application-Development Productivity," *Programmer Productivity Issues for the Eighties,* C. Jones, ed., IEEE CS Press, 1981, pp. 34–43.

4.0 STYLE AND MECHANICS

In professional settings, readers will expect your communication to be clear, concise, and mechanically correct. Beyond following established rules of grammar and spelling generally laid out in the course's standard reference works, be aware of accepted practices in technical communication to follow, as well as common errors, even when adhering to different standard reference works.

4.1 Series Commas

One of the rules that the *Chicago Manual of Style* includes in its rules for commas is not shared by all other writing handbooks. The series comma (also known as the *Oxford comma* or *serial comma*) appears before the *and* or the *or* at the end of a list. Because the omission of this comma can create ambiguity in certain cases, engineers use the series comma as a rule.

4.2 Contractions

Although contractions (e.g., *don't*, *it's*) are accepted constructions in common usage, the practice in professional documentation is to avoid them, because they can convey an overly informal tone. Contractions can be acceptable in less formal writing, such as e-mails.

4.3 Numbers

Because engineering frequently involves numbers, engineering documents use numerals (vs. spelling out numbers) more often than the *Chicago Manual of Style* dictates. As a general rule, spell out numbers up to ten, and use numerals for numbers greater than ten; **however**, see the *Chicago Manual of Style* for exceptions and for guidance on keeping usage consistent within paragraphs.

4.4 Tense

Tense in engineering communication can be confusing at times, given that some ideas exist "outside of time," so to speak. In addition to being consistent with how you use tense when tense choice is not clear,

Use the ***past tense*** when describing what you actually did in the course of your work.

Use the ***future tense*** for actions or operations that you or your team plan to perform in the future.

Use the ***simple present tense*** to express the following:

- Scientific facts that are always true (e.g., "Kirchoff's current law states...")
- Statements that are true now and will be so indefinitely (e.g., "We suggest that future researchers concentrate on…")
- Any generalizations not restricted to the past or future (e.g., "Mechanical Engineering students love to…")

4.5 Common Errors in Usage and Word Choice

The following list includes common mistakes and misuses of words that occur in student writing.

based on / on the basis of

Use the construction *based on* only when associated with the verb *to be*. In other cases, use the construction *on the basis of*.

incorrect

The antenna works based on the principles explained in Zeitung et al.

correct

This antenna design is based on the principles explained in Zeitung et al.
The antenna works on the basis of the principles explained in Zeitung et al.

Note: avoid altogether the colloquial phrasing *based off of*, which is incorrect.

British vs. American usage

Be aware of differences between British and American style in word choice. The following are the most common versions of British usage (vs. the American in parentheses)

- *amongst* (*among*)
- *forwards* (*forward*)
- *towards* (*toward*)

Note: there are also differences between British and American treatment of certain punctuation.

data

Data are plural, not singular, in technical communication.

downside / downfall

The *downside* of something is a disadvantage or negative attribute, whereas a *downfall* is a trait or event that leads to something's demise or failure.

effect / affect

Be sure to choose correctly between *effect* and *affect*. Each can function as a noun or a verb, and the meaning of each, and in each form, is different. Refer to the dictionary if you are unsure.

i.e.* and *e.g.

Writers commonly confuse these two abbreviations. Use *i.e.* in place of the phrase "that is." Use *e.g.* in place of the phrase "for example." Both appear in parentheses only; use the associated phrase, or something similar, outside of parentheses. In addition, both abbreviations are followed by a comma.

its / it's

Writers (and autocorrect functions) often mix these two words up. *Its* is a possessive pronoun, similar to *his* or *hers*, whereas *it's* is a contraction formed from "it is." There are two easy ways

to avoid mixing them up: (1) as with *his* or *hers*, *its* does not use an apostrophe, and (2) contractions should be avoided in professional communication (see 4.2 above), so a writer should correct any use of *it's* to *it is* (or to *its* if they find that *it is* is incorrect).

led / lead
Led is the past tense of the verb *to lead*. *Lead* is not.

versus / vs.
Use *versus* outside of parentheses, and use *vs.* inside of parentheses.

while
Use *while* to refer to time only. Otherwise, use words like *although*, *whereas*, *and*, or *but*.

APPENDIX A — IEEE CITATION STANDARD

[The contents of this appendix are excerpted from the IEEE Citations Standard.]

IEEE CITATION REFERENCE

Citation standards in the IEEE reference are provided for the following:

Books

Basic Format:

[1] J. K. Author, "Title of chapter in the book," in *Title of His Published Book, x*th ed. City of Publisher, Country if not USA: Abbrev. of Publisher, year, ch. *x*, sec. *x*, pp. *xxx–xxx*.

NOTE: Use *et al*. when three or more names are given.

Examples:

[1] B. Klaus and P. Horn, *Robot Vision*. Cambridge, MA: MIT Press, 1986.

[2] L. Stein, "Random patterns," in *Computers and You,* J. S. Brake, Ed. New York: Wiley, 1994, pp. 55-70.

[3] R. L. Myer, "Parametric oscillators and nonlinear materials," in *Nonlinear Optics*, vol. 4, P. G. Harper and B. S. Wherret, Eds. San Francisco, CA: Academic, 1977, pp. 47-160.

[4] M. Abramowitz and I. A. Stegun, Eds., *Handbook of Mathematical Functions* (Applied Mathematics Series 55). Washington, DC: NBS, 1964, pp. 32-33.

[5] E. F. Moore, "Gedanken-experiments on sequential machines," in *Automata Studies* (Ann. of Mathematical Studies, no. 1), C. E. Shannon and J. McCarthy, Eds. Princeton, NJ: Princeton Univ. Press, 1965, pp. 129-153.

[6] Westinghouse Electric Corporation (Staff of Technology and Science, Aerospace Div.), *Integrated Electronic Systems*. Englewood Cliffs, NJ: Prentice-Hall, 1970.

[7] M. Gorkii, "Optimal design," *Dokl. Akad. Nauk SSSR*, vol. 12, pp. 111-122, 1961 (Transl.: in L. Pontryagin, Ed., *The Mathematical Theory of Optimal Processes*. New York: Interscience, 1962, ch. 2, sec. 3, pp. 127-135).

[8] G. O. Young, "Synthetic structure of industrial plastics," in *Plastics,* vol. 3, *Polymers of Hexadromicon*, J. Peters, Ed., 2nd ed. New York: McGraw-Hill, 1964, pp. 15-64.

Handbooks

Basic Format:

[1] *Name of Manual/Handbook*, *x* ed., Abbrev. Name of Co., City of Co., Abbrev. State, year, pp. *xx-xx*.

Examples:

[1] *Transmission Systems for Communications*, 3rd ed., Western Electric Co., Winston-Salem, NC, 1985, pp. 44–60.

[2] *Motorola Semiconductor Data Manual*, Motorola Semiconductor Products Inc., Phoenix, AZ, 1989.

[3] *RCA Receiving Tube Manual*, Radio Corp. of America, Electronic Components and Devices, Harrison, NJ, Tech. Ser. RC-23, 1992.

Reports

The general form for citing technical reports is to place the name and location of the company or institution after the author and title and to give the report number and date at the end of the reference.

Basic Format:

[1] J. K. Author, "Title of report," Abbrev. Name of Co., City of Co., Abbrev. State, Rep. *xxx*, year.

Examples:

[1] E. E. Reber *et al*., "Oxygen absorption in the earth's atmosphere," Aerospace Corp., Los Angeles, CA, Tech. Rep. Angeles, CA, Tech. Rep. TR-0200 (4230-46)-3, Nov. 1988.

[2] J. H. Davis and J. R. Cogdell, "Calibration program for the 16-foot antenna," Elect. Eng. Res. Lab., Univ. Texas, Austin, Tech. Memo. NGL-006-69-3, Nov. 15, 1987.

[3] R. E. Haskell and C. T. Case, "Transient signal propagation in lossless isotropic plasmas," USAF Cambridge Res. Labs., Cambridge, MA, Rep. ARCRL-66-234 (II), 1994, vol. 2.

[4] M. A. Brusberg and E. N. Clark, "Installation, operation, and data evaluation of an oblique-incidence ionosphere sounder system," in "Radio Propagation Characteristics of the Washington-Honolulu Path," Stanford Res. Inst., Stanford, CA, Contract NOBSR-87615, Final Rep., Feb. 1995, vol. 1.

[5] P. Diament and W. L. Lupatkin, "V-line surface-wave radiation and scanning," Dept. Elect. Eng., Columbia Univ., New York, Sci. Rep. 85, Aug. 1991.

Conference Technical Articles

The general form for citing technical articles published in conference proceedings is to list the author/s and title of the paper, followed by the name (and location, if given) of the conference publication *in italics* using these standard abbreviations.

When the word below appears in the conference publication title,	*abbreviate to*
Annals	Ann.
Annual	Annu.
Colloquium	Colloq.
Conference	Conf.
Congress	Congr.

Convention	Conv.
Digest	Dig.
Exposition	Expo.
International	Int.
National	Nat.
Proceedings	Proc.
Record	Rec.
Symposium	Symp.
Technical Digest	Tech. Dig.
Technical Paper	Tech. Paper
First	1st
Second	2nd
Third	3rd
Fourth/*n*th	4th/*n*th

Write out all the remaining words, but omit most articles and prepositions like "of the" and "on." That is, *Proceedings of the 1996 Robotics and Automation Conference* becomes *Proc. 1996 Robotics and Automation Conf.*

Basic Format:

[1] J. K. Author, "Title of paper," in *Unabbreviated Name of Conf.*, City of Conf., Abbrev. State (if given), year, pp. *xxx-xxx*.

For an electronic conference article when there are no page numbers:

[1] J. K. Author [two authors: J. K. Author and A. N. Writer] [three or more authors: J. K. Author et al.], "Title of Article," in [Title of Conf. Record as it appears on the copyright page], [copyright year] © [IEEE or applicable copyright holder of the Conference Record]. doi: [DOI number]

For an unpublished paper presented at a conference:

[1] J. K. Author, "Title of paper," presented at the Unabbrev. Name of Conf., City of Conf., Abbrev. State, year.

Online Sources

The basic guideline for citing online sources is to follow the standard citation for the source given previously and add the Digital Object Identifier (DOI) at the end of the citation, or add the DOI in place of page numbers if the source is not paginated. The DOI for each IEEE conference article is assigned when the article is processed for inclusion in the IEEE Xplore digital library and is included with the reference data of the article in Xplore. See the DOI System for more information about the benefits of DOI referencing.

The following sources are unique in that they are electronic only sources.

FTP

Basic Format:

[1] J. K. Author. (year). *Title* (edition) [Type of medium]. Available FTP: Directory: File:

Example:

[1] R. J. Vidmar. (1994). *On the use of atmospheric plasmas as electromagnetic reflectors* [Online]. Available FTP: atmnext.usc.edu Directory: pub/etext/1994 File: atmosplasma.txt

WWW

Basic Format:

[1] J. K. Author. (year, month day). *Title* (edition) [Type of medium]. Available: http://www.(URL)

Example:

[1] J. Jones. (1991, May 10). *Networks (2nd ed.)* [Online]. Available: http://www.atm.com

E-Mail

Basic Format:

[1] J. K. Author. (year, month day). *Title* (edition) [Type of medium]. Available e-mail: Message:

Example:

[1] S. H. Gold. (1995, Oct. 10). *Inter-Network Talk* [Online]. Available e-mail: COMSERVE@RPIECS Message: Get NETWORK TALK

Telnet

Basic Format:

[1] J. K. Author. (year, month day). *Title* (edition) [Type of medium]. Available Telnet: Directory: File:

Example:

[1] V. Meligna. (1993, June 11). *Periodic table of elements* [Online]. Available Telnet: Library.CMU.edu Directory: Libraries/Reference Works File: Periodic Table of Elements

Patents, Standards, Theses, Unpublished

Patents

Basic Format:

[1] J. K. Author, "Title of patent," U.S. Patent *x xxx xxx*, Abbrev. Month, day, year.

Example:

[1] J. P. Wilkinson, "Nonlinear resonant circuit devices," U.S. Patent 3 624 125, July 16, 1990.

NOTE: Use "issued date" if several dates are given.

Standards

Basic Format:

[1] *Title of Standard*, Standard number, date.

Examples:

[1] *IEEE Criteria for Class IE Electric Systems*, IEEE Standard 308, 1969.

[2] *Letter Symbols for Quantities*, ANSI Standard Y10.5-1968.

Theses (M.S.) and Dissertations (Ph.D.)

Basic Format:

[1] J. K. Author, "Title of thesis," M.S. thesis, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year.

[2] J. K. Author, "Title of dissertation," Ph.D. dissertation, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year. *Examples:*

[1] J. O. Williams, "Narrow-band analyzer," Ph.D. dissertation, Dept. Elect. Eng., Harvard Univ., Cambridge, MA, 1993.

[2] N. Kawasaki, "Parametric study of thermal and chemical nonequilibrium nozzle flow," M.S. thesis, Dept. Electron. Eng., Osaka Univ., Osaka, Japan, 1993.

[3] N. M. Amer, "The effects of homogeneous magnetic fields on developments of tribolium confusum," Ph.D. dissertation, Radiation Lab., Univ. California, Berkeley, Tech. Rep. 16854, 1995. *** *The state abbreviation is omitted if the name of the university includes the state name, i.e., "Univ. California, Berkeley."****

[4] C. Becle, These de doctoral d'etat, Univ. Grenoble, Grenoble, France, 1968.

Unpublished

These are the two most common types of unpublished references.

Basic Format:

[1] J. K. Author, private communication, Abbrev. Month, year.

[2] J. K. Author, "Title of paper," unpublished.

Examples:

[1] A. Harrison, private communication, May 1995.

[2] B. Smith, "An approach to graphs of linear forms," unpublished.

[3] A. Brahms, "Representation error for real numbers in binary computer arithmetic," IEEE Computer Group

Periodicals

NOTE: When referencing IEEE Transactions, the issue number should be deleted and month carried.

Basic Format:

[1] J. K. Author, "Name of paper," *Abbrev. Title of Periodical*, vol. *x,* no. *x,* pp. *xxx-xxx,* Abbrev. Month, year.

Examples:

[1] R. E. Kalman, "New results in linear filtering and prediction theory," *J. Basic Eng*., ser. D, vol. 83, pp. 95-108, Mar. 1961.

[2] Ye. V. Lavrova, "Geographic distribution of ionospheric disturbances in the F2 layer," *Tr. IZMIRAN*, vol. 19, no. 29, pp. 31–43, 1961 (Transl.: E. R. Hope, Directorate of Scientific Information Services, Defence Research Board of Canada, Rep. T384R, Apr. 1963).

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