

RESEARCH PAPER REQUIREMENTS

MECHATRONICS 1 (MECH-01)

Sierra College MECH-01
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A. Basic Requirements:

- One of the absolute requirements for this class is writing a research paper. You cannot combine any quiz, test, or extra credit scores for the term paper. If you do not turn in a paper in the required format, I am required to give you an F in the class. We will talk about required subject and format later in this document.
- In order for me to be sure that you understand the requirements for the final paper, you are required to turn in a short sample paper in the correct format. It will NOT count for you or against you in your final grade, but it will be returned to you graded as I will grade your final paper. However, while I will not fail you for not turning in the sample paper, if you do not turn in the sample paper you will be reduced one letter final grade. That is, if you otherwise earned an A but failed to turn in the sample paper you will get a B as the final class grade. A grade otherwise that would have been a B gets a C, and so on.
- Both the papers need to be turned in on time. While I have some latitude to accept a late quiz or exam, I do not have latitude to accept a late paper. I grade each paper personally and it takes somewhere around an hour per paper for me to do an adequate job of grading. Yes, I check spelling, punctuation, and run each paper through a program that checks for plagiarism (see later for the definition of plagiarism). If I am to return your paper to you on time, it needs to be turned in to me on time.
- A prototype annotated final paper is posted on the class website www.rstengineering.com/sierra . If you have any question about what I expect you might want to read the annotated paper.
- You may turn in the sample paper and/or the final paper at any time during the semester ON or BEFORE to the deadline. Note that all deadlines in this class are one minute before midnight on the day of the deadline. Not the morning after the deadline. Not the week later. It is a true DEADline. The only exception may be a natural disaster (fire, explosion weather disaster, etc.) that closes the Sierra College campus nearest your home. For example, I live in Grass Valley. We have had snowstorms up here that have closed Nevada County Campus for a day or two. That is acceptable. However, if you live in Loomis, I'd have a hard time stretching a NCC snowstorm down that far.
- There are only TWO ways to turn in either of the papers and that is by an email attachment to my Sierra College email account jweir@sierracollege.edu OR by copying it directly onto my flash drive in the classroom. The format MUST be either a Word (.doc or .docx format) or an Adobe .pdf document. **Do NOT give me some goosey format that requires me to download some off-brand software. Do NOT send me a link to download it from some other site. I will not do either one, and if the deadline is past, then the paper has NOT been submitted on time.**

- It is going to be a lot easier for me if you will do your subject line in the email(s) as follows: *mylastname sample paper* or *mylastname final paper*. Getting a paper with the email subject *captainwhizbang Why The Gazornenplaps Cannot Be Rectified To Be Understood In Lower Slobbovian* makes me work harder to figure out what this is all about. A hard worked teacher tends to be a bit more picky in their grading. Capiche?
- One last thought and I'll leave you to ruminating on the paper. I realize that I have all levels of English speakers in this class. It is difficult for me to grade a paper down because I have to correct a few dozen grammar and spelling mistakes. I don't like to do that, especially when the thoughts are clever and on point. However, correct English is part of the grade. The college maintains a FREE service in the library (LRC) called the "Writing Center". There sole puRPOSE in life is to help students get good grades on papers by correcting the English before the paper is turned in. They will spend an inordinate amount of tome (again, for free) helping any student to get a good grade on their paper.

Now that we've been through that stuff, let's get to how we are doing a research paper and some thoughts about how we might approach this task.

B. What Exactly is a Research Paper?

A research paper ("RP") is a document ("essay") in which you explain and/or demonstrate those things that you have learned or experienced about the topic you choose. You and I may agree upon almost any topic that relates to the art and science of Mechatronics. Topics may range from inventions or discoveries, the inventors or discoverers, how the invention/discovery impacted history or the present day, and the like.

Contrary to popular opinion, an RP is NOT an exercise in how to use Wikipedia or internet cut and paste. Each RP will be scanned into optical character recognition and uncited (i.e. unreferenced) catch phrases and paragraphs will be googled against the appropriate online sources. Plagiarism (using sources without proper quotation marks, citations, and references) will fail this paper.

Prior to the selection of a topic, the following documents may be obtained from the Sierra College Writing Center. The librarian can help you acquire the documents:

- "Writing A Research Paper". No date, no author, no source.
- "Writing Center Hours". No date, no author, no source.
- "Sierra College Writing Center Guidelines". No date, no author, no source.
- "Straight Talk about Plagiarism". Bedford/ St. Martins, no date, no author.
- "Term Paper Handbook For MLA Format ". Sierra Writing Center, January 2005, no author.

C. WHY IS A RP REQUIRED?

There are several reasons for requiring a RP. Perhaps the prime reason is to get acquainted with presenting technical ideas and concepts in written form. Of the hundreds and hundreds of engineers and technicians I know, I can count those who are competent technical writers on the fingers of my hands without taking off my left-hand baseball glove (and they are thus highly paid and in great demand). Other reasons include preparation for other classes that will require RPs, acquiring the ability to compose concise, logical thought expressions, and to acquire a personal satisfaction in being able to communicate your views and thoughts in written form.

One last thought about acquiring writing skills ... publications (magazines, newspapers, books, etc.) pay VERY well for niche-market articles crafted with style and grace.

D. WHEN DO I HAVE TO SUBMIT MY RP TOPIC AND THE RP ITSELF?

As listed on the class schedule, the selection of the topic due date is the third class period and the RP itself is due the 14th week of the semester.

E. WHAT CAN THE RP TOPIC BE?

Almost anything having to do with the art and science of Mechatronics. Pick something that YOU enjoy and YOU find fascinating and that YOU want to know about. I've seen dozens, nay HUNDREDS of papers that start out, "James Watt was born on the 13th of January 1732 in the small town of Lochnorry Scotland...". Snore. Yawn.

However, if you find out that James Watt invented the steam engine so he could get from his home to his mistress' house an hour faster, THEN we've got something that will hold my interest and make me want to read more. Make the subject jump, make it real, and make me want to see it in living color.

F. WHAT FORMAT MUST THE RP BE IN?

The MLA format is very useful when you write papers in English, History, and the like. I prefer "Jim's Version" of the MLA format which is better suited to the scientific world. The following are the technical requirements:

- Minimum of 3, maximum of 8 pages of text. That's TEXT, not one page of writing and two pages of huge images. If you want to do a word count instead, one full page of text double spaced is about 500 words. If you want to do 1500 words I'll take that in place of counting pages.

- Double-spaced, typed, serif mixed-case font 12 point type. Serif is typeface like this, which has little squiggles at the ends of some of the letters. This particular typeface is Times New Roman, which is a very readable typeface. This is Arial or Helvetica. It doesn't have the little squiggles at the end of the letters and is an unacceptable typeface.
- Formal bibliography, works cited, or citation pages not included in required text pages, 5 citations minimum.
- Embedded illustrations may not be included in required text pages.
- Grammar, spelling, and format will be graded (see below).
- One inch margins top, bottom, and both sides.
- Please do not waste good trees giving me a paper copy of the RP. I ****MUCH**** prefer the paper as an email attachment to jweir@sierracollege.edu but if you just don't have access to email (even though the Library has free computers for this use) I will take the RP on my flash drive ON or BEFORE the due date.

G. GRADING THE RP

The RP will be graded as follows:

- Introduction (why this topic, how does it relate to electronics) 10%
- Body (the "guts" of the paper; the explanation of the topic) 25%
- Conclusion (how did this paper explain the topic) 20%
- Bibliography (following proper MLA format) 20%
- Format (margins, typeface, grammar, spelling, size limitations) 25%
- Originality -- make me laugh, cry, or tell me something I don't know and get up to 25% extra credit (not to exceed 100% on the whole paper).

H. VERBAL EXTRA CREDIT PRESENTATION

During the last two weeks of class, you may be able to volunteer to present your paper to the class in a short (10 to 20 minute) verbal presentation (time permitting) for extra credit.

I. RANDOM TOPICS I'VE SEEN THAT WORKED WELL

How Electronics Has Affected (put your academic major here)

"But Jim, my major hasn't been affected by electronics..."

Really?

- Economics/Business. You've perhaps heard of Excel? Hand calculators? The death of mechanical calculators?
- "I'm going in to the military" Night Vision? Computer aimed guns/mortars/tanks? Remotely piloted vehicles?
- "I'm a PE major". You've heard of swimmer's touch plates? Baseball radar guns? Electronic score boards? Stopwatches?
- Life Sciences (Bio, Chem, etc) Laser scalpels? Arthroscopic surgery? Barium intestine tracing? Carbon 14 dating? Chromoscopic analysis?

...and the list goes on...and on...

- Why Bell Invented the Telephone
- How Did Morse Come To Design Morse Code
- The Qwerty Keyboard Versus The Dvorak Keyboard
- What Next After the USB Bus
- Laser Printers v.s. InkJet
- Monitors ... CRT, Plasma, LED, LCD and Their Relative Advantages
- How High Is Def
- I Blogged a Blog Into The Air
- Marconi – Life and Times
- Cell Phones ... How, Why, When, Where
- Speed and the CHP – Radar Detectors

...and the really good stuff...

- How Green Is Green
- A Comparison – Convention(al) vs. Green
- Is Green Recyclable

..and if these don't fire your rocket, let me know what really interests you and I'll see if I can come up with something that will be good for both of us.