

Collaborating with Librarians to Help First Year Students Explore Engineering Disciplines and Improve Research & Writing Skills

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10th First Year Engineering Experience (FYEE) Conference

Enhancing the First Year of Engineering Education

Rowan University, Glassboro, NJ

Tuesday - Thursday July 24 - 26, 2018

Overview

- Background and Rationale
- The Idea
- Method of Conduct
- Student Feedback
- Discussion

Background and Rationale




**KEEP
CALM
JUST
GOOGLE
IT**

NJIT

New Jersey's Science & Technology University

THE EDGE IN KNOWLEDGE

The Idea

The Idea

- Target Course- Fundamentals of Engineering Design (FED101)
- General Engineering and Civil Engineering students participated
- Two-part assignment
- Separate list of articles based on interests of the participating student population

Method of Conduct

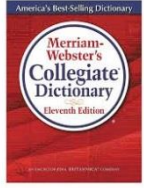
Preparation (Getting students ready)

- Research Tutorials (<http://researchguides.njit.edu/tutorials>): Complete all nine tutorials before moving to the next set. These tutorials will help you get started with engineering research.
 - Getting Started
 - 4 Ways to Find Articles
 - 6 Useful NJIT Databases
 - Find a Book
 - Searching & Citation Chaining
 - Picking a Topic
 - Research is a Conversation
 - Developing a Research Question
 - Evaluate Your Sources

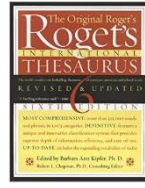
Preparation (Getting students ready)

- Communication: Thinking, Reading, Writing, Speaking: Tools for All Writers: (<http://researchguides.njit.edu/communication>) Familiarize yourself with the tools listed on this page. They will come in very handy in improving your professional writing, especially report and research papers.


Writer's Web Shelf



Merriam-Webster's Online Dictionary



Roget's Thesaurus

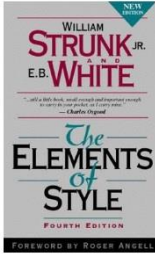


Grammar and Mechanics Online Writing Lab (Purdue)

The Internet Grammar of English University College, London

The Guide to Grammar and Writing Capitol Community College, CT

Avoid Wordiness Online Writing Lab (Purdue)



The Elements of Style by William Strunk; E. B. White; 1923 ed.

Call Number: PE1408 .S772

ISBN: 020530902X

Publication Date: later editions in print at the Van Houten Library

- Web Writing Style Guide
- Why Academics Stink at Writing and How to Fix it and other essays on style put together by Steven Pinker for The Chronicle of Higher Education. (September 26, 2014).

Preparation (Getting students ready)

- How to Evaluate Information Sources (<http://researchguides.njit.edu/evaluate>) Also read more about the **CRAAP** Test (<http://researchguides.njit.edu/evaluate/CRAAP>)
 - **C**urrency
 - **R**elevance
 - **A**uthority
 - **A**ccuracy
 - **P**urpose
- Read the Research Guide on Citation (<http://researchguides.njit.edu/citations>)

Engineering Research Assignment – Part 1

- STEP 1: Pick an article from the list of articles provided.
- STEP 2: Locate the article you picked using resources on NJIT's library website. Write a 1-2 page paper summarizing the article. Critically analyze the article. Is the evidence strong? (This will help you figure out what type of article to choose for Part 2.)

Engineering Research Assignment – Part 2

- STEP 3: Find at least one or more articles (recommended number of articles = 2) from the NJIT library where the authors either agree and support the information presented in article 1 OR disagree and expand your thinking about potential problems or issues related in some way to the article you used in Part 1.

Guiding the students along...

Include in your report:

- An introductory paragraph that talks about the article you have researched, and the reason your audience should care about it.
- Hypothesis statement
- Summary
- Use evidence from all the articles to support the main idea
- Cite in-text and provide a full list of references at the end
- Your conclusion synthesizing the issues and possible future research needed.

Examples of articles – General Engineering

- Arabani, M. (2011). Effect of glass cullet on the improvement of the dynamic behavior of asphalt concrete. *Construction and Building Materials*, 25:1181-1185.
- Kosowatz, J. (2017). High-Tech Eyes. Mechanical Engineering, *Advances in Vision Technology*. 139(3), 36-41.

Examples of articles – Civil Engineering

- McConnell, A. (2017, Oct) Wheels up, wheels spinning: As drone technology takes off, solutions are needed. *Roads & Bridges*. 55(10): 30-34. Database: Academic Search Premier
- Shamshad, A., Das, S.K., Rao, B., & Rao, B. Hanumantha. (2017, Dec). Characterization of coarse fraction of red mud as a civil engineering construction material *Journal of Cleaner Production*.. 168: 679-691.13p. Database: Business Source Premier

The Writing Center

- Extra credit for visiting the writing center and attending a session with one of their advisors to work on the assignment

Student Feedback

Student Feedback Summary

- 80% of the respondents strongly recommended this assignment for first-year engineering students

Area of Improvement	% Responses
Research skills	80.95
Critical thinking	54.76
Writing abilities	50.00
Evaluating sources	57.14
Utilizing library resources	64.29
Citing my resources	54.76
Self-confidence	26.19

Student Feedback Comments

- I enjoyed actually learning about the technologies and the depth at which I was able to understand certain aspects that were explained in the research articles. One of the things I enjoyed the least was actually writing the paper itself, but I did not find the papers to be bothersome because I was writing about a topic that I was interested in.
- What I liked the most was that we got to read about some interesting topics, however I didn't like how we could only choose from the NJIT library.
- I like the way we were giving opinion and ideas to start up my idea. I also appreciate the tutor that was giving to help us search up for my research paper.
- Nothing because I could google the articles instead.

Discussion

Discussion

- Learning to work independently
- Understanding how knowledge is constructed
- Self confidence
- Understanding that assertions require supporting evidence
- Clarification of a career path

Any Questions or Comments?

