**ECCS 2311 Electric Circuits**

**Question Exploration Description**

**Motivation:**

The exploratory questions discussed daily in lecture and the questions submitted in lab help students to learn to formulate questions that have a high propensity for exploration. This skill is important in the engineering design process because a good exploratory question related to the problem domain can aid in the effort to better understand the problem and underlying need. Moreover, it can unlock hidden connections between other problems or topics.

**Assignment Description:**

Students may formulate a new question, use one of the questions from a submitted question set, or use any of the “Questions of the Day” shared with students to serve as the exploratory question to direct their research into the electric circuits topic. The question that is explored should be unique for each student in the class so there is no repetition in the explorations. To facilitate this requirement, the first deliverable will be a submission of the question the student intends to use. The instructor will approve the questions based on whether there is repetition in the topics.

The main deliverable for this assignment is a written exploration of the question (see the paper formatting details below). This exploration is essentially a small technical report, where your question is viewed as the research question. It is expected that the paper should include ideas and arguments that aid to answer the question or information that helps explain how the question is still an open problem or mystery, if applicable. For questions with high potential for exploration, it is NOT expected that the question is necessarily fully answered or the topic is fully explored, as this is a short technical report. The key is to demonstrate some understanding of the landscape of the topic(s) and include additional questions that arise in the exploration research. These additional questions do not need to be answered, but will demonstrate that you know what you don’t know (it is VERY important to be aware of what you don’t know in many engineering contexts)!

Students must select at least one peer-reviewed or peer-edited technical resource, such as a journal article, conference paper, magazine article, or textbook (other than our textbook) that should be cited in the exploration of your question. The source should be closely related to your question so that it is useful in your research. One hint to finding good sources for your question is to pick out key words from your question to use as search queries in one of the databases available from the library. Feel free to contact a librarian, such as Christopher Deems ([c-deems@onu.edu](mailto:c-deems@onu.edu)) or Bethany Spieth ([b-spieth@onu.edu](mailto:b-spieth@onu.edu)). Our librarians are happy to help students with research. Also, consider using the Writing Center ([writing-help@onu.edu](mailto:writing-help@onu.edu)) as a resource in this project [+5% bonus given if done so].

Before the end of the exploration summary, include a section entitled “Source Evaluation” in which you should evaluate how you identified the source (did you use a database, what was the search query, etc.) and how well the source aided you in the exploration of your question. For example, did the source uncover the information necessary to answer the question? Did it lead to more questions (and what were they)? Did you discover concepts that sparked your curiosity through the source? This section should be at least one paragraph in length and can focus on your favorite source if you have more than one source.

Include a bibliography at the end and appropriately cite your sources throughout the paper using IEEE style (see the link below).

**Assigned:** Tuesday, October 16, 2018

**Question Submission Deadline**: Tuesday, October 23, 2018

**Due Date:** Tuesday, November 13, 2018

**Exploration Summary Paper Format:**

* Title Page: None! Do not give a title page.
* Margins: Use normal margins (1” on all sides).
* Font: Times New Roman, 11 point font, justified.
* Paragraph Line Spacing: Set to Multiple at 1.15. Indent paragraphs but do not skip a line between paragraphs.
* Overall Length: ½ to 2 pages (Do NOT place citations on a separate page! Just skip a line & have a reference section)
* Citation Style: IEEE style; see

https://ieee-dataport.org/sites/default/files/analysis/27/IEEE%20Citation%20Guidelines.pdf).

* Type Your Name at the top, right justified
* On the next line write the exploratory question that is the focus of your research.
* Boldface Section titles and underline them. Skip a single line between sections.
* It is a good idea to organize the ideas described in the summary into sections to improve readability.
* Note: All of these guidelines are used in this handout. Please print 2-sided so every submission is 1 page (front/back).
* The summaries will be graded based on quality of writing and content.
* Finally, use caution with tense (normally use present tense as you are describing the ideas to the reader now).

**Grading**:

* Typesetting, format, and writing quality (paragraph structure, grammar, etc.) – 10 points
* Exploratory question – 20 points (Focus on topic orientation and potential for depth)
* Exploration summary – 40 points
  + Demonstration of basic understanding of the landscape of the topic – 20 points
  + Good references provided where appropriate – 10 points
  + Additional questions that demonstrate that you know what you don’t know – 10 points
* Evaluation of technical resource – 20 points
* References list in bibliography – 10 points
* Writing Center – +5% bonus if used (be sure to have them email the instructor to confirm)