This assignment is your major individual work of the semester. The objective is to develop your research and writing skills. Including **the research proposal** and **outline**, which will demonstrate your progress, the total assignment is worth 50% of your final mark. In total, the paper will be a **maximum** of 2500 words, excluding the bibliography.

The research paper should outline a specific, well-contextualized engineering problem that matters to you. Your **audience** is a **committee or individual** who could act on your recommendation; assume this audience has the general knowledge level of your peers in WCOM 206. Your **purpose** is to persuade the audience of the significance of the problem you have chosen, as well as the benefits of the solution that you are recommending. Your presentation of academic literature (at minimum five peer-reviewed sources) will demonstrate your knowledge of current research related to resolving this problem. As part of the paper’s analysis section, compare up to three potential solutions to this problem, and then **recommend the solution** that is the most logical option based on the research and arguments that you have provided.

Your writing **style** should be clear, cohesive, and error-free; you will build an argument that arrives at a logical solution. Use the skills that you’ve been learning in class to achieve this end (e.g., research, outlining, concision, parallelism, topic sentences, flow). The following overview provides the **organizational** strategy for this research paper and offers general guidelines for each section.

The **title page** includes your name, the due date of the paper, the title of your paper (5-12 relevant, specific words), keywords (3-5 words or phrases), and an abstract of 150-250 words written as one paragraph (excluded from word count).

Moving from broad to narrow, the **introduction** should provide your audience with a clear indication of how your paper will proceed. Be sure to provide contextual information so your reader can understand the relevance of the problem that you are addressing. You may refer to key academic literature related to this problem. Provide a clear statement that names the problem, the solutions you will be comparing, and the criteria you will use to compare the solutions, and include a **clear thesis statement** that names your ultimate **recommendation**.

The **background** section of your paper should expand upon your introduction. Likely, you will need to explain in more detail the context of the problem you are working to solve. This section should provide more information about the solutions that you will be comparing in the next section, and should detail the criteria by which you will be comparing the solutions. Be sure to choose variables for comparison that are significant to this particular problem. The more specific you can be about the context of your problem— and the potential solutions, and the criteria for comparing them—the better. Besides demonstrating your understanding of research related to the problem you describe, by the end of this section readers should have a sense of the solutions that you will be comparing, as well as why you have chosen these criteria for your comparison.

The **analysis** section is perhaps the most important because this is the section where you will compare potential solutions to the specific problem that you are working to resolve.

You will also ensure that your reader understands the significance of the outcomes of your analysis. Give careful thought to the organization of this section. Will you organize by solution, or by the criteria that you are using to compare solutions? With which solution will you begin or end the section? By the end of the analysis section, readers should understand how and why one solution is stronger than the others. Consider including a table to summarize and to clearly demonstrate the outcomes of this section. You should then discuss the relevance of your analysis. Link back to the context you’ve included in your introduction and explain what your analysis of each potential solution means within this broader context.

The **conclusion** section summarizes the paper as a whole, notes any limitations of the research, and explains what knowledge or understanding comes out of the research paper in terms of the preceding analysis of solutions. The relevance of these outcomes should be stated. Some repetition of your most important points is expected, but no exact copying from earlier segments is allowed.

In the (optional) **recommendations** section, state the exact actions you recommend. Your recommendations should be clearly connected to the background and analysis sections. This section may also include suggestions for how further research should proceed, or how a particular solution could be implemented.

In your **references**, list a minimum of five peer-reviewed academic sources (plus other relevant publications) that you have cited in the body of the document. Do not include any publications that you have not actually cited in the document. Your reference list must be consistently formatted in IEEE style.

**Figures and tables**

Use figures (such as graphs, diagrams, images, or other visual aids) to benefit the audience’s understanding of your topic. For example, if you describe a design, you ought to include an image of it. Tables can also clearly display differences between solutions. Include figures and tables only where you refer to them in the text; they should be properly labelled, and if you do not create them yourself, their source(s) must be included. Through effective labels and captions, ensure that your audience can understand each table or figure without reading the accompanying text.

Be consistent with your use of headings and subheadings: do not over-format or leave excessive space above or below headings. Be sure to number your pages.