IE 564

TERM PROJECT

In IE 564, you have been or will be introduced to the concepts and techniques of cellular manufacturing systems with respect to both design and scheduling. Perform a very thorough literature search by referring to refereed articles in journals including, but not limited to, *IIE Transactions, European Journal of Operational Research, Journal of the Operational Research Society, Journal of Computers and Operations Research, International Journal of Production Research, International Journal of Production Economics, Journal of Manufacturing systems, and Journal of Computers and Industrial Engineering* to identify an article where one of these concepts/techniques has been successfully used by the author(s) to address a specific problem. The problem addressed can be either a theoretical development or a practical application.

In your own words, provide a comprehensive description of the problem addressed in the article. Clearly state what really was the motivation for the author(s) to have investigated the problem. Bear in mind that to clearly describe the motivation, you will need to assess the state-of-the-art in that problem area. You can do this by carefully reviewing the articles that have been published previously. These may be found listed under the references of the article you have selected.

More importantly, critique the article around the following issues:

a. Have all pertinent factors been considered by the authors? Would you have considered including additional factors in the problem investigated? If so, would those factors have led to a more comprehensive investigation?

b. Why did the author(s) select the technique reported in the article for solving the problem? Could you suggest a different approach for the same problem?

c. Are there any significant findings from the work reported in the paper that can be used as a suitable lead for performing any future research? You should identify areas for future research that are not spelled out by the author(s) in the article.

You must turn in your answers in report form. Your report must be structured around the following sections:

- *Introduction* – A comprehensive introduction to the problem investigated and the motivation for selecting it.
- *Problem Statement* - A description of the problem in its entirety in your own words.
- *Methodology* – A description of the various methods used to analyze the problem in the order in which it is presented in the problem statement.
- *Analysis* – A description of the analysis performed by employing the various methods described above.
- *Results* – A description of the results obtained for the problem. Note: Depending upon the nature of the problem, the sections on analysis and results can be combined into one section.
- *Conclusions* – Conclusions, while being succinct, must cover the entire scope of the problem.
• **Recommendations** – A description of the recommendations resulting from the investigation of the problem.

Use sections and subsections within a section as you deem appropriate in the write-up. The report must include a Table of Contents with page numbers of sections, subsections, and appendices listed. References, if used, must be cited in the body of the report and listed in the back under References.

Make sure that your report is thorough and complete, addressing all of the questions above including relevant discussions. Attach a copy of the article to your report. If necessary, attach copies of other selected articles that you have reviewed to substantiate the motivation.

**Note:**

You must get my approval by turning in a one-page summary of the work you are proposing to do for this term project. This should be done well in advance prior to writing up the report.