

Description of the Design Assignment (25 marks) (team-based) (for undergraduate students only)

Due: Dec 11, 2018 ; 8pm

(by email: abbas.milani@ubc.ca)



- 1- Each group of students should meet as early as possible and choose a multiple criteria decision making (MCDM) problem, as related to any applied practical case study/problem addressing common issues in engineering, our society or environment. As part of your discussions, you may decide e.g. to search through on-line research articles and/or textbooks and find a suitable problem with given decision matrix and datasets. Case study topics should be briefly introduced to the class (in later October) by each group to get feedback and suggestions from others. Note that part I of the course can also be incorporated into this design project, and it will receive bonus mark up to 5 marks (e.g. first checking if the input decision factors have an effect on each output/criteria and then solving the MCDM problem).
- 2- Upon the selection of your project topic and gathering data, each group should pick a total of at least 10 MCDM methods and solves their selected decision-making problem. All group members may decide to solve all the solution methods and compare/double check their results and include a summary of individual results in the final report, or alternatively they may decide to share the workload (i.e., each person solving a few methods). **At least one method of group decision making should be incorporated in the assignment, especially when it comes to the final decision making stage** (you can search through published articles, posted material on Course page, etc for example of group decision making). For formal strategies available for group decision making you may also consult here:

http://en.wikipedia.org/wiki/Group_decision-making

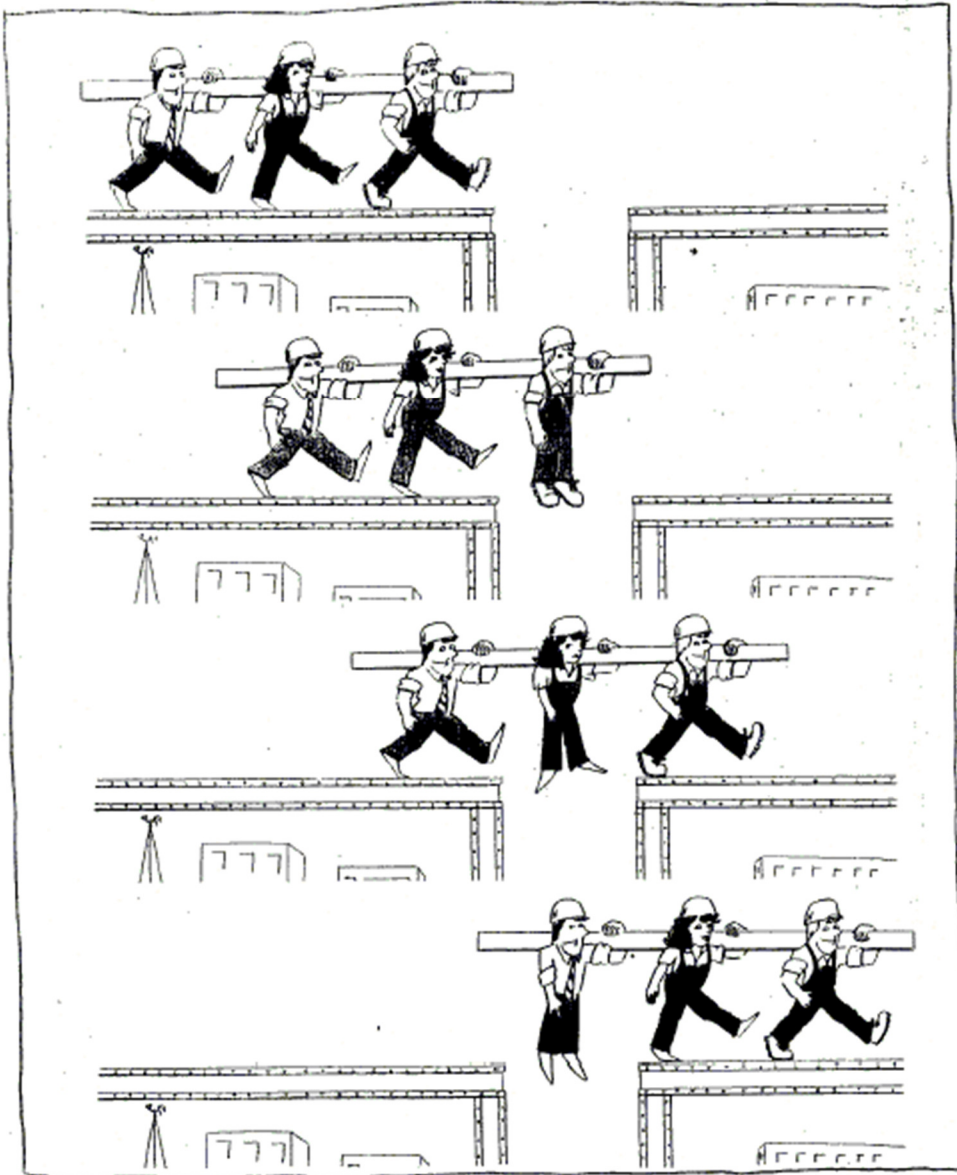
- 3- For each group, the final joint report (which could vary between 15-30 pages in length) should include the following sections:

- A cover page
 - An executive summary (1-2 page) explaining how the workload was divided among the group members and who did what. All group members should sign and date this page. The entire group will receive one mark. Teamwork-work and performance will also be part of each group's mark.
 - An Introduction (a thorough description of your MCDM problem and its potential application/impact)
 - Results of each solution method with a discussion of results, assumptions, your criticisms, etc (you can use your spreadsheets/Python codes too)
 - Concluding remarks: a 1-2 page summary and discussion for the final selection of the best design alternative.
- 4- One of the group members should submit the report as a PDF to abbas.milani@ubc by the given deadline, and CC all the group members.

**** Students are encouraged to work gradually on the assignment as we advance through the second part of the course.**

ENJOY YOUR TEAMWORK AND PLEASE ALSO SEE THE NEXT PAGE!

TEAM = Together Everyone Achieve More



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