Systematic Pedagogy to Solving PERT CPM with Excel

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Abstract: Over the past ten years, simple and inexpensive management science/operations research software that is user friendly to the mentor, student, and instructor is becoming more difficult to obtain. For example, Emmons, Flowers, Khot, and Mather's STORM 4.0 for Windows, is obsolete and no longer in print. After a diligent search, it appears that there is no adequate inexpensive software that is easily available. Most project management software that is available is not only expensive but does not allow an interface between PERT (stochastic) and CPM (deterministic). This paper presents pedagogy from a systems approach using Microsoft Excel. The object is to prepare a spreadsheet file with three separate worksheets that are linked to the first worksheet. The step-by-step systematic approach allows the entry on the *main* sheet of a desired confidence level of completion in only one cell. This can be changed by the user and all calculations are re-computed. The sheet computes all stochastic required calculations, along with the heuristic required to transfer the data to CPM. It then is able to compute a time-cost-tradeoff. The major advantage to the practitioner, engineer, instructor and student is that Excel is readily available on all personal computers, easily understood, and is very practical. Students with very little exposure to PERT were able to master the method within the first hour of exposure.

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