Worksheet 1: Project Planning

Updated: 25th February, 2022

You should attempt this worksheet in groups of about three or four. However, make sure everyone in the group keeps a complete record of the group's work!

First, as a group, select ***one*** of the following projects:

- A new train line between:

  Perth's two largest universities: Curtin (in Bentley) and UWA(in Crawley) OR
  Malaysia's two universities: Curtin Miri Campus and University of Malaysia, Sarawak OR,
  Mauritius's two universities: Curtin Mauritius and Middlesex University in Mauritius OR
  Sri Lanka's two universities: SLIIT (Malabe) and University of Colombo.

Consider the following activities: public consultation, demolition work, track laying, electrification (building overhead lines), signal construction, station construction, train construction and delivery, track testing, etc. In particular, what kind of route will the rail line take?

- A music festival to be held in an island resort. Consider the following needs: marketing, transport (ferries/planes, buses/taxis), accommodation, catering (meals and drinks), signing up bands to play, hiring staff, stage setup (including seating, light and sound), first-aid, insurance, and anything else that comes to mind!

In either case, assume you have unlimited money. (Obviously this isn't exactly realistic, but that doesn't stop us learning how to plan.)

1. Work Breakdown

Develop a work breakdown structure (WBS) for this project. List the major steps required and break them down as needed into smaller steps where appropriate. (But don't go too far.)

2. Estimation

For each activity in your WBS, have your group play planning poker to estimate its duration (in days, weeks or months).

You probably won't have planning poker cards, so make do by writing your estimates on slips of paper. Keep to the spirit of planning poker, making sure everyone reveals their estimates simultaneously. For each activity, sort out any discrepancies in your estimates by briefly discussing what you think the activity will involve.

Note 1: If your group estimates 0 (zero), ∞ (infinity) or ? (unknown) for any task, ~~will~~ need to adjust your WBS accordingly, and re-estimate any additional activities.

Note 2: You can use a Task Table to note down your final estimations for each activity.

3. Prerequisite Activities

Determine dependencies between activities in the WBS.

Note 3: You can add another column to your task table and indicate dependencies. First number your activities and them refer them with the activity numbers in the *dependencies* column.

4. Drawing Activity Graphs

Draw an activity graph – either anAON or AOA (your choice) – to represent the dependencies between activities and activity durations. You can

5. Critical Path and Slack Time

Note 4: You can (if you wish) complete the rest of this worksheet either individually *or* ina group.

(a) Find the earliest start (ES) and earliest finish (EF) times for each activity. Start with the activities that don't depend on anything, and work forwards until you get to the final activities. This should also give you the estimated project duration (i.e. take the maximum of all the EF times).

(b) Identify any activities that appear to be on the critical path, and determine how much slack time all the *non-critical* activities have.

(c) Find the latest start (LS) and latest finish (LF) times for each activity. This is similar to part (a), except you work backwards. Start with activities at the end of the project (i.e. that nothing else depends on). These will have an LF equal to the project duration.

End of Worksheet