Project management specific utilities

Objectives:

Utilities used in this laboratory's applications will be presented.

Theory Overview

See lecture notes (Chapter 3).

Software instruments used in project management

Considering a project's dynamic context and the multitude of factors and information which must be integrated and tracked, the project manager must use software instruments for an efficient project management process. These instruments provide the following main advantages:

- Simplifies implementing project management specific techniques (by automation, updates, archiving, running the proper computations);
- Eases integrating information and sets/tracks dependencies;
- Facilitates project monitoring and tendencies analysis;
- Facilitates management of changes;
- Allows tracking information on a level and detail basis.

Starting from the offered facilities, software instruments can be classified in two main categories:

- Instruments that can assist only in some cases of the project management process: schedule generation (Microsoft Project), documents management, etc.
  Disadvantages: they solve a small set of problems; don't offer a general integrated vision over activities;
  Advantages: low costs, ease of use, some process automation;
- Instruments for a complete approach to project management (ex: IBM Rational).
  Disadvantages: much more expensive, more difficult to configure and use;
  Advantages: a complete vision of the project processes, increased efficiency.

Microsoft Project is one of the most used utilities, probably because of its ease of use, its manufacturer's notoriety and accessible price.

Main facilities:

Functional

- Creating the schedule starting from a list of activities, with their respective dependencies, time restrictions, available resources per activity (including human);
- Budget related, costs tracking;
- Following the occupation rate of human resources;

I/O

- Simple to use interface, friendly and complete Help section;
- Graphical visualization of different results (as simple to configure reports).

Usage guide for Microsoft Project (MP)

MP has a known menu format as most Microsoft-specific apps, as seen in Fig. 1. For utilizing this software as simplest as possible, in the work toolbar, there have been added the following options: Task, Track, Resources and Reports (circled in red in Fig. 1). These allow a simpler management of an activity list, human and physical allocated resources, and indirectly of the schedule, budget, etc. The Task option can help in time management. The Resources option is dedicated to managing resources (as the name implies). The Reports option can generate simple reports which will facilitate time, costs and human resources management. The Track option provides project monitoring and changes tracking.

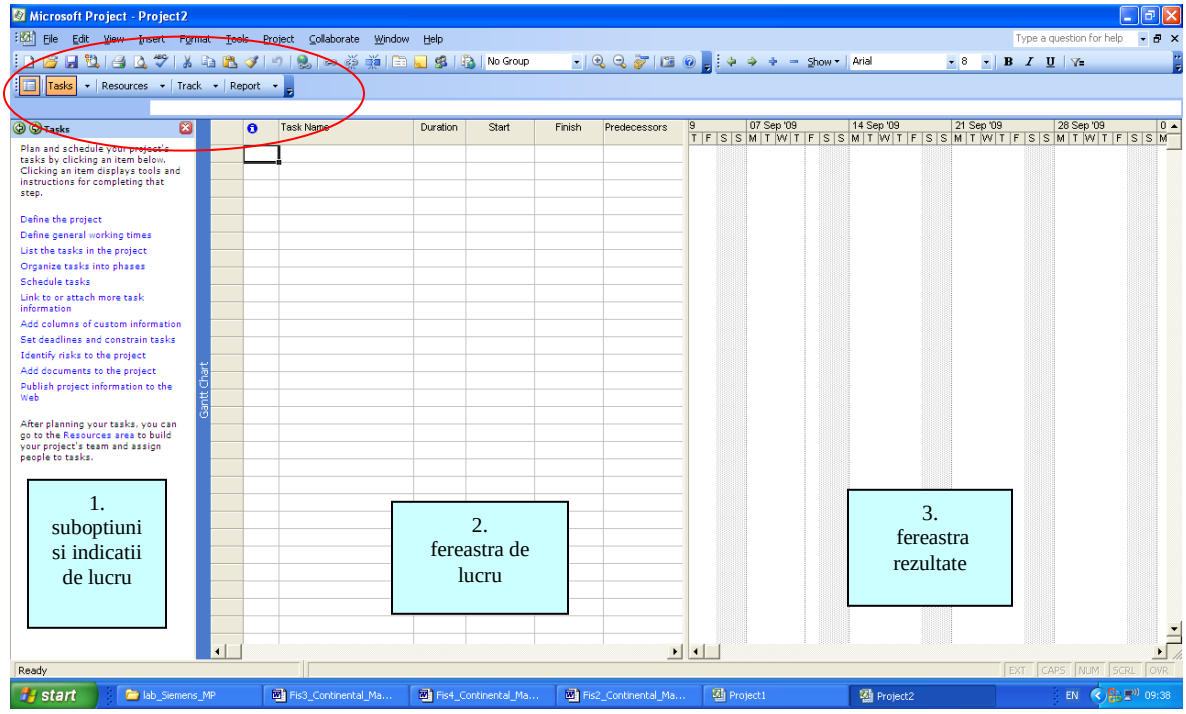

Fig.1. Microsoft Project Workspace.

For utilizing MP as easier as possible, it is recommended following the steps from the Help section in the right order.

The Task option is the main tool to be used in time management. Its sub-options can be followed in this provided order. If the default settings and options are applicable to the project, the step can be skipped.

Sub-options and work instructions are shown in window 1 (Fig. 1). The user supplied data are shown in window 2, and the results (Gantt chart) are displayed in window 3. To be noted, the

information type shown in windows 2 and 3 is configured via the Reports options. The options in Window 1 are the default set.

Define the project - here the project start date will be set, and used to render the rest of the schedule, after the activity list has been entered. The default start date value is the date on which the project has been initialized.

Define general working times – here the company work schedule can be set (the default working hours value is 8h/day, with 1 hour break, from Monday to Friday). This schedule can be customized differently for any human resources category.

List the tasks in the project – here the activity list can be set.

It is recommended that the activity list is to be introduced by organizing activities based on project work phases, and dependant activities be on near lines.
Even if the WBS was created by separating packages on the first level based on functionality criteria, it is suggested that corresponding activities to be entered in sub-groups, based on the phase they are going to be allocated to. This helps in better tracking projects with many activities.

Atention. For entering milestones, MP needs as input some dedicated, generic activities, of 0 time length. Actually, these activities don't include any real operations, but only mark some project imposed timelines. Checking can be done through another activity, as in the example shown in Fig. 2, at activity 2.

Observation: Recurring tasks can be entered (<recurring tasks> - see Insert), but for the readability of the task list, it is preferred avoiding them. These tasks are not rescheduled, even if the previous activities have not finalized correctly.

Organize tasks into phases – here a hierarchized list of activities can be generated, using the left/right indenting buttons.

Activities can be grouped on different hierarchic levels. Activities on the top level are considered achieved only if all activities on lower levels are finished.
That's why the time of all top-level activities is the sum of all component inferior activities. Leaf activities must be adequately configured (by duration, resources, etc.). For other levels, MP automatically handles the calculations.
An example is showcased in Fig. 2. Activities 1and 2 are components of work phase 1. For activity 2 a supplementary hierarchic level has been introduced.

Schedule tasks – here task dependencies are set (FS, FF, SS). Based on these, the project schedule will be created in the results window (see Fig. 2). FS dependencies can be introduced in any selected task group by using the "Edit/Link tasks" option.

Link to or attach more task information – they can refer to allocated resources, additional descriptions, etc. – including hyperlinks.

Attention: It is recommended that before entering an activity's necessary resources, resource groups used in the project be defined using the Resource option (see Costs Management laboratory). Preferably, this information will be entered using the "Resource" sub-option.
In the Notes section, elements from the activity card can be entered.

Add columns of custom information – here workspace columns can be configured.

Set deadlines and constrain tasks – here, semi-flexible and inflexible restrictions can be inserted.

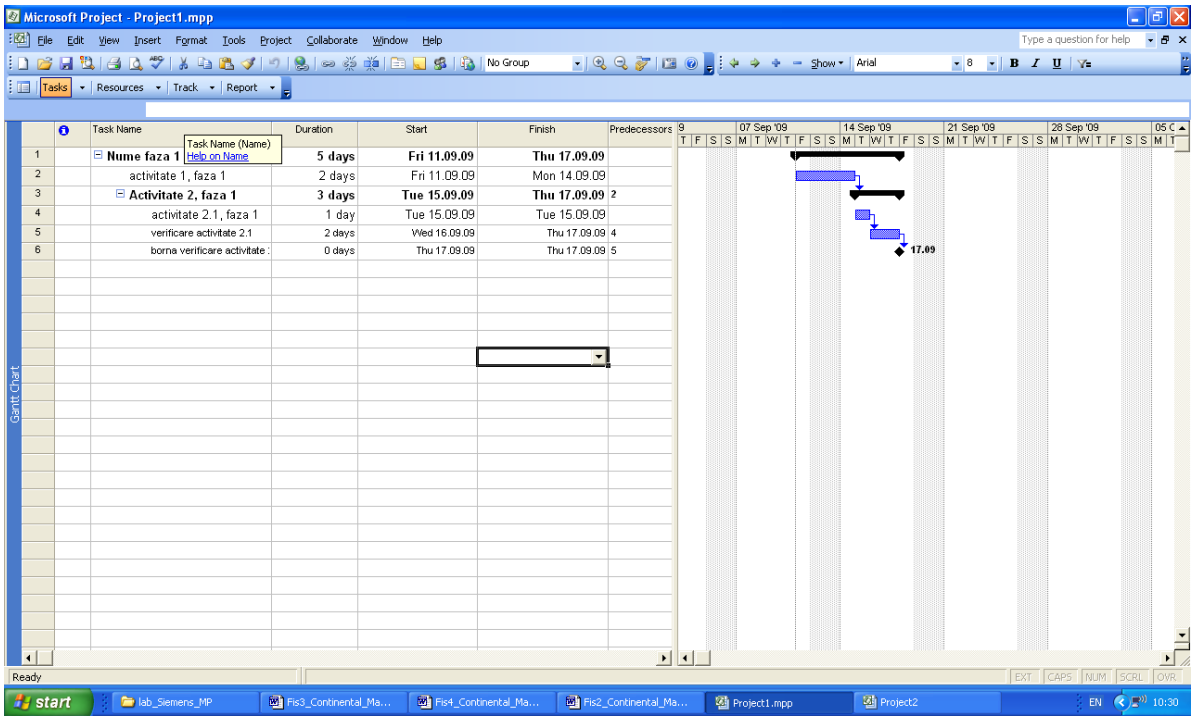

Fig.2. Organizing activities in work phases

The Resource option offers facilities for managing resources based on categories:

Specify people and equipment for the project – here resource categories and their respective elements are defined. Resources can be associated to two types: work (human resources) and material (physical goods). For simplicity, a Type column can be added in the project resource information table.

There resources can be shown grouped, by various criteria. For human resources, the hourly rate can be listed, which will be used in calculating the adjacent cost. For material resources, the indicated cost is the total cost for that activity. Also, a fixed cost can be added at the start or end of a project.

Specify the booking types for resources – here tasks can be shown as allocated (or not) to a project.

Define working times for resources – here the work schedule can be configured for each resource at a time.

Assign people and equipment to tasks – here resources can be allocated per each task. The costs are also updated. If some resources are over-allocated, MP provides a useful instrument for reallocating these resources (Tools/Level Resources).

Link to or attach more resource information – here info about resources can be added (used in creating the human resources card and showing the technical characteristics necessary for material resources).

Add columns of custom information – here workspace visible columns can be configured.

The Track Option is used for tracking the project evolution.

Save a baseline plan to compare with later versions – here the current configuration can be saved. Using the Compare Progress sub-option, the user can compare how changes were made to the initial setup.

Prepare to track the progress of your project – here the progress display mode can be configured (achieved %).

Check the progress of the project – here information about the current project progress status is displayed. Filters by various tasks can be used.

Make changes to the project – here resources allocation can be changed.

The Reports Options allows generating and viewing reports:

Select a view or report – here the report type and view mode can be selected (print/screen).

Change the content or order of information in a view – here the user can apply task filters to the selected report.

Change the look or content of the Gantt Chart – here the Gantt chart time unit, bar type and shown text can be customized.

A few reports can be created using the sub-options:

Compare progress against baseline work

See the project's critical tasks

See how resources' time is allocated

See project costs

Preconfigured reports can be viewed using the View/Reports menu. Various project view modes are available through the View menu.

For details about using MP, students can consult the incorporated Help section.

Information about project management useful instruments, and other necessary information can be found on websites of various professional associations: AACE International, PMWebRing (http://www.pmforum.org/), Project Management Institute.

Working plan:

Students will use MP for accommodating with the workspace, GUI and possible configuration options.