Module 7.3 Time Management - Activity Lists

One of the most important aspects of managing a project is splitting it up in achievable tasks and managing the timing. Timing Tools consist of:

Activity Lists

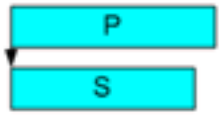
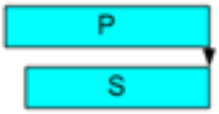
The team will plan out the activities for the next week or more. This allows the team to reflect on their progress and to ask each other why or why not did the team meet the goals for the week. Pertinent questions to ask are:

1. Of the results I obtained last week, which are the most important?
2. Did I deviate from last week's planning? If so, why?
3. What are my most important goals for the upcoming week?
4. How do I overcome potential hurdles?

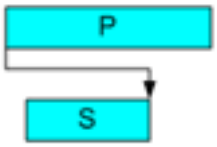
Understanding Task Dependencies in Project Management

Dependencies are the relationships among tasks, which determine the order in which activities need to be performed. There are four (4) types of dependency relationships.

Types of dependencies

Finish to Start		Predecessor must finish before Successor can start. [Land must be purchased before road building can start]
Start to Start		Predecessor must start before Successor can start. [Road excavating must start before Asphalt can be laid]
Finish to Finish		Predecessor must finish before Successor can finish. [Laying Asphalt must be complete before line painting can be completed]

Start to Finish



Predecessor must start before Successor can finish. [Road excavating must start before line painting can be completed]

Dependencies are the relationships of the preceding tasks to the succeeding tasks. Tasks may have multiple preceding tasks and multiple succeeding tasks. The most common dependency relationship is a finish-to-start relationship. Task P (predecessor) must be finished before task S (successor) can start. The least common relationship is the start-to-finish relationship. Project Insight, project management software, supports all four dependency relationships.

It is always easier to arrange all tasks in terms of a finish-to-start relationship and an 'as soon as possible' constraint. This dependency type is the easiest relationship for others to understand and will usually result in a longer than normal schedule. This gives the schedule more 'slack.' You may then utilize the other relationships as ways to shrink the duration of the overall schedule. If you use finish-to-start and as soon as possible, you will be able to change the schedule as needed.

Weekly Team Appointments

All appointments need to be recorded by the recorder on the Google Team Calendar so the activities can be changed at a moments notice and sent to all team members.

Tools for tracking

In the first weeks of your research, you will be surprised to discover how much time slips away. Therefore, start tracking, and you will see that your team will easily spend an hour arranging things in the lab or moving around objectives you plan on using. Start tracking how much time you spend on the computer. Put a Leechblock on your computer to keep from social networking sites during 8:30am and 5pm. Activity Lists used before the start of each laboratory period cuts down the amount of time arranging tasks.

Activity lists Identify the tasks that need to be carried out. A large research project can be split into smaller research projects. Splitting the main tasks into their respective subtasks. The main tasks for laboratory experiments are: preparing the setup, ordering the required elements and products, preparing the measurement, setting up a system to check and process these measurements, carrying out the experiments, cleaning up and dismantling the setup and finally storing all raw data in an organized way.

First, consider how much time each task takes. Quantifying the amount of time you need for each subtask, is difficult in the beginning. For a first overview of the project and

the main tasks, you can think in terms of a week and then by rotation. Once you narrow down to the level of subtasks, and using individual personal circumstances will help to determine how many hours you need for each small subtask.

Then determine which tasks run simultaneously**.** Juggling tasks is an essential part of managing a project. Weekly activity lists weekly help the team to review and reorganize before entering the lab each day. When a team is doing laboratory experiments, the team needs to walk into the lab with prior planning and discussion on what materials to order and a plan if you have to negotiate your lab space and time. The activity lists in the Weekly Progress Reports allow the team to start to discuss and report your results immediately. It is the Project leader's responsibility to assess the consequences if a task takes more time. Questions to contemplate when a task takes more time:

Which other subtasks are affected when something is delayed?
Can you move something forward in your planning while a delay occurs?
How much extra time can you spend on a subtask without missing a milestone?

From an engineering point of view, safety factors must always be considered when doing task allocation. A rule of thumb is to consider 20% of extra time for your tasks. We are all human and we make mistakes. By the same token: make sure you plan time off for your holidays and to recharge your batteries. Keep in mind as well that minor tasks not organized in the activity lists will become apparent as you perform the tasks. For your research project, the main tasks are:

Literature Review and Development of Theory

There are few different ways that a literature review can be structured in order to make it easy for the team to communicate all the essential information. It is important to consider how the team will structure the lit review so you can begin to collaborate on how the project will be designed and how you will individually write your proposal.

1. Chronologically - start with the earliest references find them, discuss them at the beginning, and then gradually work your way logically through time, to the references that are most recent. It is very rare that using this structure will not give you a very clear and well laid out review, which is easy to follow.

2. Relationship to specific articles to use in the Project - the team can also structure the literature review by how closely related references are to the project. Start the literature review by discussing all the articles that are very distantly related to your work, and finish with the articles that are very closely related to your project. This is also a really good way to structure the literature review but it can be a little bit harder to do than using the chronological method. This is because closeness and relatedness to your

work is often quite subjective. It is also quite interesting to note that this method and the chronological method often yield exactly the same structure, as more distantly related work tends to have happened longer ago (but not always).

3. Theme – the team can also organize the literature review by theme. This is probably the most difficult but it can be the most effective. Once the initial review has been done review the titles and abstracts to see if there are multiple discrete themes. In this process while keeping the themes discrete, the team will need to link the themes together in the literature review by the things the articles share in common. It is also important to note that structuring by theme will often be the main structure of the literature review, but there will often be sub-structures too. For example, if you have grouped your themes together:

How do you order them?
What structure do you use?

Similarly, there will be many references within a theme, how do you structure these? Well the answer is simply to use the chronology or relationship methods as discussed earlier, depending on which one seems to fit the best. Although the theme method is probably the hardest it can be the most rewarding, and help you to write a very clear and well-structured proposal. (Ridley, D., The Literature Review: A Step-by-Step Guide for Students).

Experiments:

1. Planning is essential on a team
There is more to plan when doing an experiment than executing the experiment. Your team will need to plan ordering and arranging delivery of your materials, the fabrication of your specimens, side testing and then the protocol for the experimental program. Even though your planning will change (mine is changing frequently because of unexpected delays: sickness of technicians, the carpenter being unavailable...), you still need a plan to make sure you won't forget anything and to estimate the time every step will take you.

2. Prepare
Don't walk into the lab empty handed. The Project Leader will have a fixed activity list with the most recent data available in the team's Dropbox with the laboratory notebook up to date. Have cell phones along to take pictures of relevant observations.

3. Classify
Don't wait a week after testing to organize and classify your data and notes. After completing an experiment save the raw data and pictures into their respective Dropbox folders. Add results into tables building the data test by test. Write a short summary in

your lab book. You get the picture: take action immediately to keep it all neatly organized.

4. Automatize

If you carry out a large test series, try to automatize your data processing as much as possible. Even though programming might take you a few days, the benefits will return to you in the long run. For example write a Matlab code that reads your raw data and returns all plots and numerical values needed for the considered test. Programming is by far may not be your specialty, but you can something while writing code, and then can generate all plots in just a few seconds. That sure is a win.

5. Write

Don't wait until months after the experiment to write your report. Sketch an outline of how you want to discuss every specimen and test and make a habit of recording the results in the Weekly Progress Report after finishing a specimen. Initially, you might remember every detail of every test, but every now and then you will have to check your Weekly Progress Reports to verify what happened during a certain experiment. There's a limit to our memory, so do not wait until you are confused to write down your results and observations into the Weekly Progress Report.

6. Smile

You are not working all by yourself. Respect your team and others. Arrive in time when you need to fabricate a specimen. It might be hard work but make sure you enjoy. Joke around, have fun, and above all: smile.

Weekly Activity Lists

The project leader creates the written weekly activity list with the team. Lists are discussed at meetings and lab for further organization. The lists are a team performance measure. The lists, when utilized properly, allow the project leader to allocate tasks dependent upon individual strengths and weaknesses. *Inefficiencies occur when member's strengths and weaknesses are not taken into account when assigning tasks and allocating times.* The Activity Lists are the team's primary means for allocating tasks. Periodically checking and revising them throughout the week creates efficiency, high productivity and clear communication. The lists can stimulate discussion on how to organize time management for the team. Activity List should be included in the "Work to be Done" section in the Weekly Progress Report. The lists help organize a balanced workload over long periods of time and coordinate individual team member's time management schedules, allowing the team to improve their ability to estimate time when allocating tasks. For some teams, in the beginning of the project, during the literature search, the lists may not appear to be helpful, but by the fifth week of your project you will find them more effective. The lists reduce confusion about which team member is doing each task, especially when data is being analyzed and lab notes are unclear. The lists are also used to organize outside activities for the team, including task

allocation for oral presentation planning and writing individual and collaborative papers. Activity Lists allow tasks to be delegated when each team member is working on a different part of the experiment during each lab period. Activity Lists allow the team not to waste time at the beginning of the lab period to delegate tasks allowing members to come to lab prepared and to exhibit a more thorough understanding of the experimental methods. *Having regular meetings and involving the entire team in scheduling with clear deadlines and allocating time can be effective.*

At weekly team meetings when discussing what tasks need to be accomplished the Project Leader facilitates the distribution of tasks, by having the members explain *why* the task needs to be accomplished and the consequence of accomplishing that task. Having a continuing discussion about our strengths and weaknesses when assigning tasks can be essential in sculpting a shared vision together as a team. At the beginning of the semester, every member expects to accomplish every aspect of the project. As the semester progresses and you realize you can't accomplish everything (for example, there is no time, room in the budget, or resources are not available), your team needs to be able to cut out certain objectives in order to move forward with more important aspects of the project. Your Expectations, Shared Vision, and Ground Rules can often change to account for these types of decisions. If the project leader takes a minute to remind the team of all the tasks accomplished in the past week can help because it is easy to forget all the hard work and milestones completed in the past week, since in the meetings the team is always focused on moving forward and thinking about all the tasks to accomplish for the following week. Pausing to give the team a "pat on the back" for all the team has accomplished, especially during hard weeks can increase motivation and morale.

Project Leaders should always delineate timelines for the completion of written reports in their activity lists, which include a deadline for individual content of the first draft, a deadline for edits, a deadline for incorporating instructors' feedback on the first draft, and a deadline for edits on the second draft. These timelines are effective in helping the team manage their time for written assignments when approximate times are given for each task, which can be discussed for accuracy after a task has been completed.

Creating Weekly Activity Lists:

1. All tasks should be delineated on the weekly activity lists that each team member will be performing during the week.
2. List any obstacles to a task so solutions and time to implement solutions can be assigned to team members during the weekly meetings.
    a. Example - Experiment 1
        i. Ordering equipment.
            1. Obstacle some equipment will take time to arrive
3. Decide tasks to be done by each team member or list on agenda and leave time to decide which tasks each team member will perform if your ground rules state the team does this activity collaboratively.

a. Note: It is a good idea for the project leader to make a preliminary activity list before the meeting to save time and to have something in writing to discuss helping to increase the efficiency of the discussion.

b. Some teams allocate time in the laboratory at the end of an experiment to do the activity lists. This should be stated in ground rules.

2. Attach the Weekly Activity Lists, which identify person performing the task and estimated times to do the task to the agendas.
3. Deadlines for submitting work on these Activity Lists are essential.
4. Complicated tasks can be assigned to specific team members to create action plans to distribute to all team members.
5. Assignment of these tasks can be planned before the meeting or in the laboratory and attached to the agenda or in the Weekly Progress Report. It is usually good to keep all activity lists with estimated times and revised times after a task is completed in a separate folder in the Dropbox for reference.
6. Templates and Examples are on the Collaboration Toolbox website (Module 7.3a).