Unit 5

~~Monitoring and Control~~

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Resource Allocation

Intro:

Resource allocation is the process of assigning and scheduling available resources in the most effective and economical way possible.

It is the mgt and delegation of resources throughout a project to ensure that it runs as smoothly and successfully as possible.

The final result of resource allocation will normally be a no. of schedules including:

(a) Activity schedule: Indicates planned start and completion dates for each activity.

(b) Resource Scheduling: showing the dates on which each resource will be reqn and level of that requirement.

(c) Cost Schedule: shows the planned cummulative expenditure incurred by use of resources over the time.

WHO Allocates Resources:

(A) Project Manager:

* He/she concentrates on resources which cannot be sufficiently available/used without proper planning when required.
* Another resource is senior s/w developer, as they are hardest to find. So, project manager need to be very careful while allocating it for them in advance.
* Developers don't want to wait, as they prefer busy with activities and tasks that show clear progress.

(B) Resource Organization:

A program org. chart is very competent to allocate staffs effectively.

* Develop the hierarchial program org.
* Identify Roles & responsibilities
* plan for number of staff on each role
* Establish teams.

Identifying Resource Requirements:

For each and every activity, we need to identify the resources required in the following categories:

(A) Work Amount Required (in work units)
(B) Basic skill or Experience Level required (to undertake the task)
(C) Complexity of task (This will help to determine the experience required for that object)
(D) Task Category (Skilled/semiskilled/skilled in leadership, management, experts system and categories)

Example

Activity: Install n/w H/w for 20 computers

Soln

(A) Work Units (Work Amount) = 20

(B) Basic skill Required = Bachelors Degree in related field

(C) Task Complexity = 5 (rate out of 10)

(D) Task Category = Skilled in Expert and Leadership
Semiskilled in management. (etc.)

Resource Scheduling:

After all the required resources have been identified and allocated, now they all need to scheduled according to their task priorities. and availability.

(a) The very first task to be done is : start date and end date of project to schedule resources efficiently.

(b) Then the use of resources should be monitored and balanced throughout the project

(c) For Human Resource scheduling, following things should be considered:

- Planned Leave, Public Holidays
- Possible Sick Leave (random, it cant be predicted)
- General motivation for the tasks they are allocated to do.
- Work load and stress on project
- Stress outside of work.

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Resource Histograms:

Commonly used during planning to indicate possible problem areas.

- People (by category) vs Week Number
- For individual: estimated no. of tasks over weeks etc.

Eg:

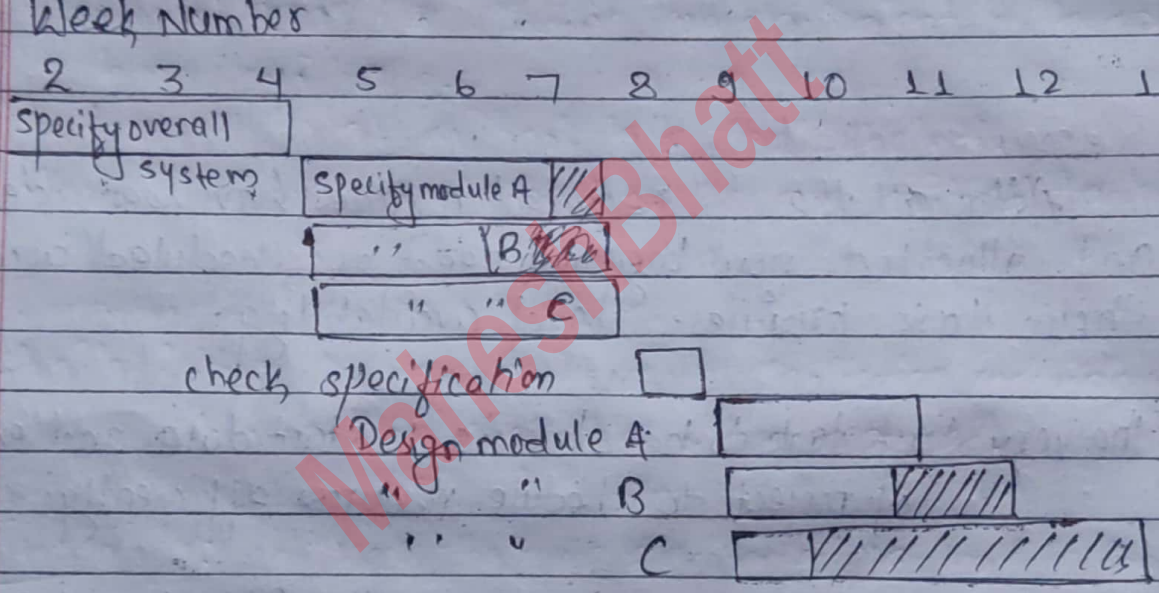

Fig: Resource Histogram

White rectangle indicates when an actual activity is scheduled.

Shaded rectangle indicates total float.

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Resource Smoothing:

It is one of the project mgt tools used in the resource optimization techniques. It is defined as technique that adjusts the activity of a schedule model so that all the requirements for the resources donot go beyond limits than already pre-defined during planning.

There are only few resuable resources that are limitless thus the time schedules have to be imposed and adjusted to manage limited availability of resources in given time.

The main objective of this tool is to complete the work/ activity within required date and, at the same time avoiding peaks and troughs of the resource demand.

Resource Balancing: (Leveling):

One of the most difficult things in project mgt. is making sure that work is allocated equally, and last thing, any project manager has to do is to overload one or more team members and others letting to work little only. Then a question arise, how to make sure each resource has equivalent work to amount of available time?

This is where resource balancing (leveling) is taken into an account. Here;

(a) First of all make sure, the Work Breakdown Structure (WBS) is thorough and accurate and list all resources and activities.

(b) Now, identify most critical tasks and allocate best resources for that works.

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(c) Now, its time to begin resource leveling:
(a) check to see how many hours are available per team member for work, then determine how many hours have been allocated to each person.
(b) If there is any uncertainity in allocation of time/person then the tasks should be adjusted so that the no. of regn work hours are equivalent to the no. of hours available.
By doing this, all critical tasks are labeled.
Now, follow same procedure for non-critical tasks.

Resource Allocation Issues:

(a) Availability: We need to know if a particular individual will be available when required.

(b) Criticality: Allocate the more experienced personal to the critical activity, which is very tough task to do.

(c) Risk: Allocate highly experienced personal to highest risk activity to reduce overall project uncertainity.

(d) Training: Proper training need to be provided to every person about the task they are given to.

(e) Team Building: Proper selection of members for particular team to do particular task.

E-N-D