Module 5

Project Resources Management

Objective Covered in this section

The Project Resource Management section provides basic understanding and working with resources in a project.

- Resources
- Entering Resources in MS-Project 2010
- Assigning Resources to tasks
- Resource Information

1. Resources

What is a Resource?

Resources are people, facilities, machines or materials used to create the project product. Tasks cannot be completed without resources.

Types of Resources

- **Human Resources**
  these are the human resources, referred to as Work resources in Microsoft Project.

- **Facilities**
  Facilities are the Infrastructure costs associated with a task and is defined as a fixed cost in Microsoft Project

- **Equipment**
  Equipment resources are also works resources, but they are different from people resources in the way they are used and scheduled. People generally have a set number of working hours that they will contribute to a task each day. But pieces of equipment don't really have a schedule: they can work around the clock if it's needed.

- **Material**
  Material resources are the goods needed by work resources to complete tasks. Tracking the use of material resources helps track the rate at which the resources are used, as well as their costs. This is especially applicable in building and construction projects that use a lot of materials, such as lumber, steel, or glass.

- **Cost**
  Cost resources such as lodging or airfare, are created as a type of resource and assigned to a task. Cost resources do not have a calendar applied to them and hence do not affect the scheduling of the task. It does not depend on the amount of work done on a task.
  To apply Cost Resources, in the Resource Sheet create a new resource and define the Type as Cost.

- **Generic Resource**
  Certain resources are identified as generic resources (generic resources: Placeholder resources that are used to specify the skills required for a specific task.). This allows them to be identified by skill rather than by name. Add the Generic field to a resource view when you want to review, filter for, or set generic resources. This is especially useful when you're in the process of finding actual resources to replace the generic ones.

- **Budget Resources**
  The Budget field is used to view or change whether a work, material, or cost resource is a budget resource, that is, a resource whose work, material, or costs should be tracked in the project. Identify budget resources when you want to track budgeted resource work, material, or costs against planned (baseline) and actual resource work, material, or costs. Budget resources cannot be assigned to individual tasks in a project, but they can be assigned to the project summary task (project summary task: A task that summarizes the duration, work, and costs of all tasks in a project. The project summary task appears at the top of the project, its ID number is 0, and it presents the project's timeline from start to finish.). In fact, only budget resources can be assigned to the project summary task.

After you have assigned a resource to tasks, you cannot change that resource to a budget resource. For cost resources that are budget resources, you can only enter information in the Budget Cost fields, but not the Budget Work fields. For work and material resources that are budget resources, you can only enter information in the Budget Work fields, and not in the Budget Cost fields.
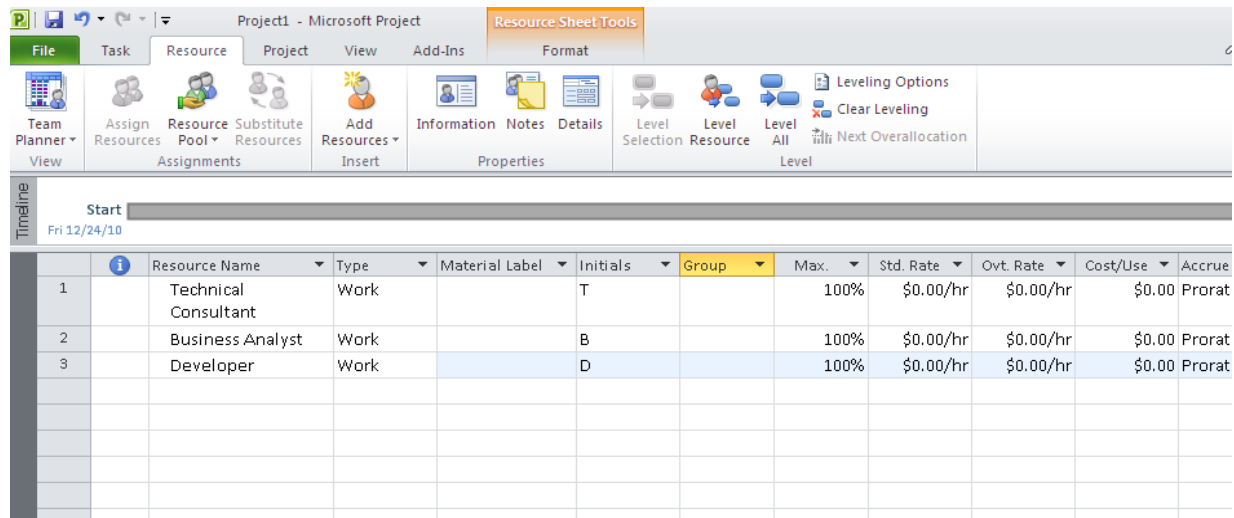
The Max Units field is not available for work resources that are budget resources, because these are already considered full-time equivalent work resources for budgetary reasons. The Standard Rate, Overtime Rate, and Cost per Use fields are also not applicable to budget resources

2. Entering Resources in MS-Project 2010

Before assigning resources to tasks, it is essential to define the resources in the Resource Sheet

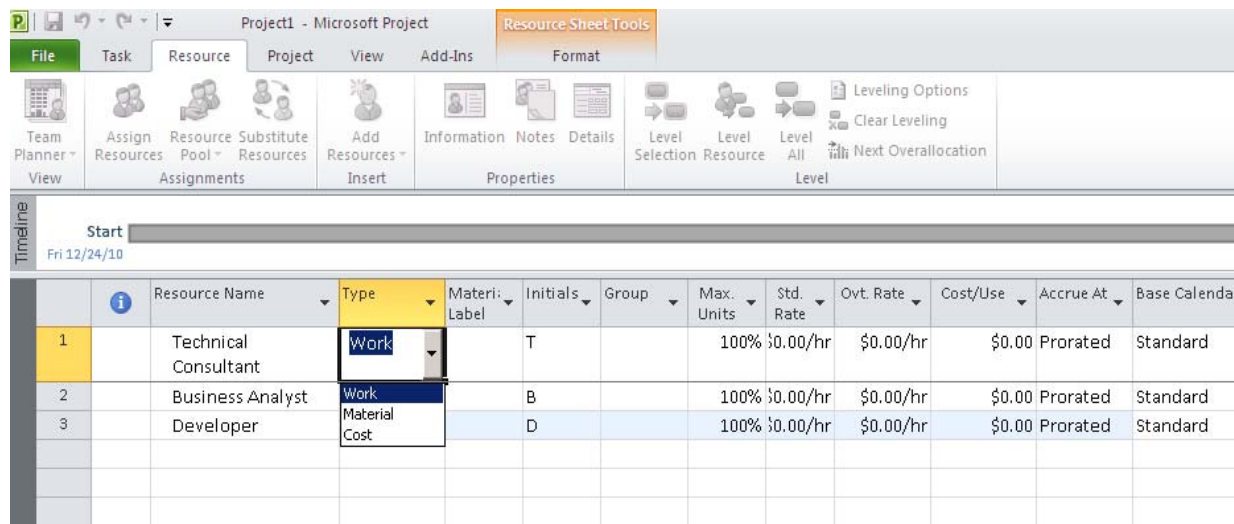The following details are required for each resource,

- Resource name
- Type of Resource - Work / Material / Cost
- Material label
- Max. Units
- Std. Rate
- Overtime Rate
- Cost per use
- Accrue at
- Base Calendar

Fig 5.1: Resource Sheet – Adding Resources

Under the Resource Type, the user has an option to choose from Work , Material or Cost as resource types, as shown in the figure below,

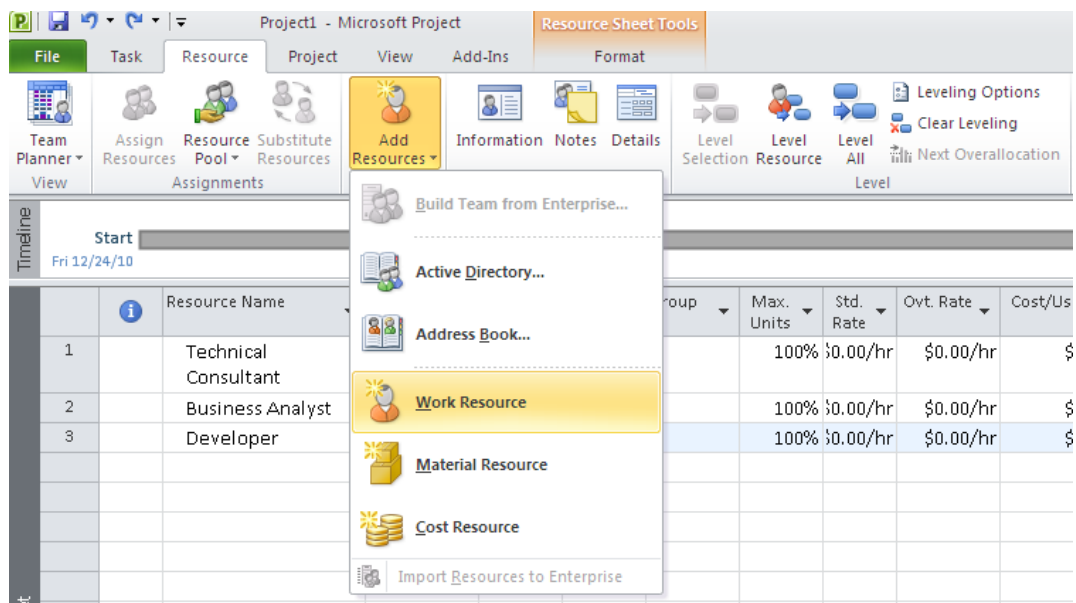Fig 5.2: Resource Types

If you do not yet know the name of the resource (for example, if the position or contract has yet to be filled), use a placeholder name.eg, Trainer Soft skill, Analyst etc

## Adding resources using add resource dialog box

3. Assigning Resources to tasks

Assigning resources to tasks helps to keep things organized in the project. Setting up resources is especially worthwhile if there are schedule or cost constraints for your project. If you don't enter resource information, Project calculates the time and scope of the project, but you will have no idea how much cost is going into the project.

Why Assigning Resources to Tasks?

A major benefit of assigning resources is that the Project Manager will not accidentally schedule a task to be done when a resource isn't available or forget to find someone to complete a certain task.

Resources are assigned in the Assign Resource Dialog Box or in the Task Form.
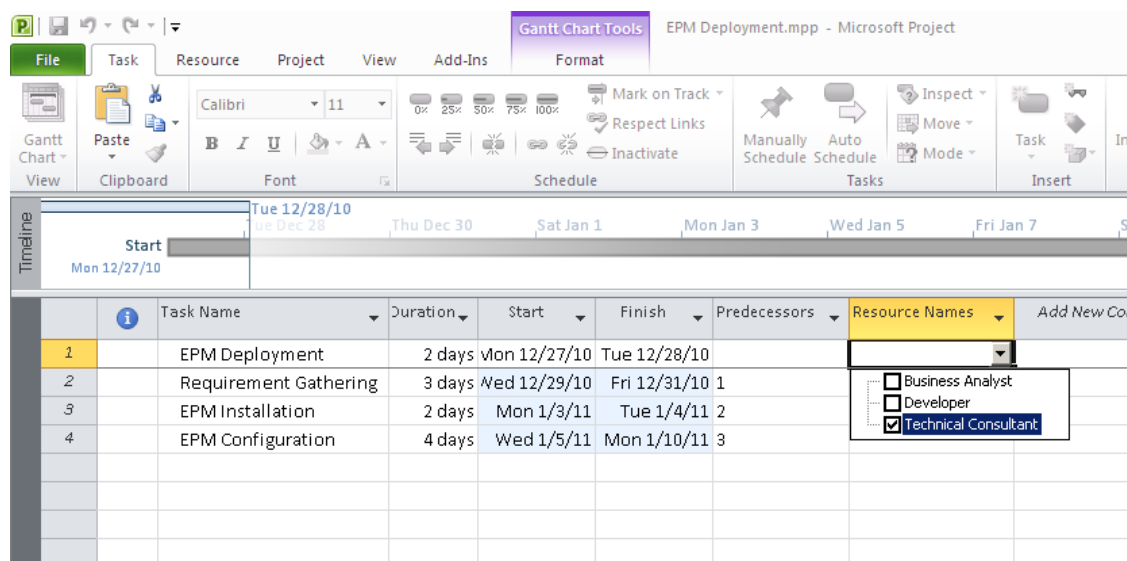
3.1 Setting Options for Assigning Resources

By default, Microsoft Project shows assignment units as a percentage. For example, if you'll assign a resource to a task full-time, that resource's unit appears as 100%; however, you can change these units to be shown as a decimal. If you change to a decimal format, the resource's unit will appear as 1.00.

Formatting required for the text.

1. Go to File tab → options→ select Schedule

2. You can select either Decimal or percentage in the option for 'Show assignment units as'.
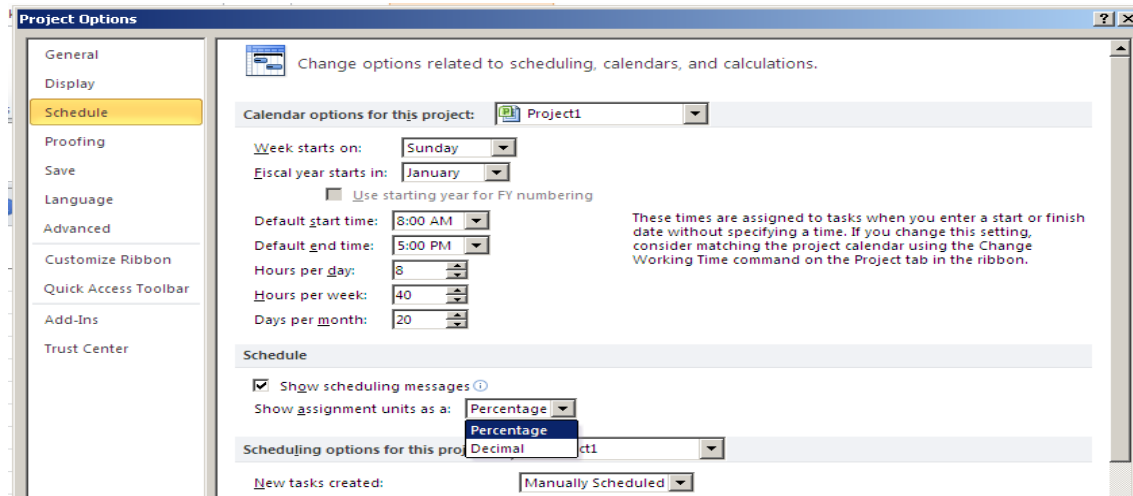
Fig 5.3: Setting Options

3.2 Assigning Resources using the Assign Resource Dialog Box

1. In the Task View, select a task

2. Choose the Assign Resources button [icon] Resource Tab.

3. The Assign Resources dialog box opens and displays all defined resources in the resource sheet.

4. Select the resources needed to the task from the list and also enter units of assignment.

5. Click Assign button.

6. User also has an option to Remove or Replace an existing assignment.
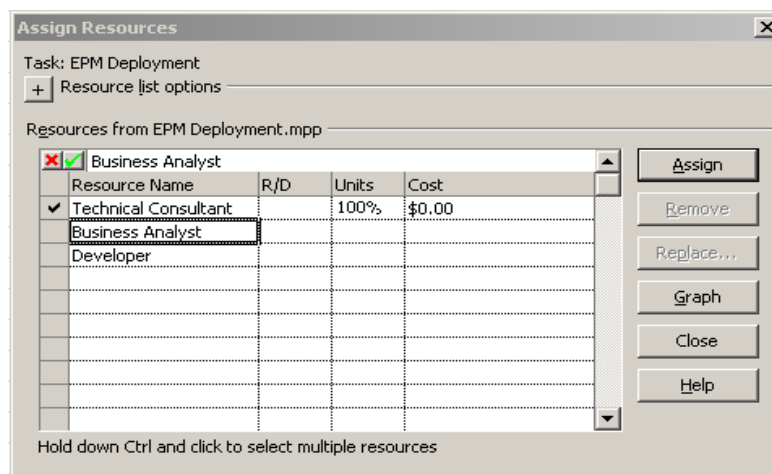
Fig 5.4: Assigning Resources

3.3 Assigning Resources using the Task Form

The Gantt chart with the Task Form in the lower pane is one of the popular views for assigning resources.

To add resources in the Task Form, follow these steps:

1. To activate Task Form in the lower pane, choose View Tab→Split view→Details.
2. Select a task in the top pane.
3. Click a cell in the Resource Name column.
4. Select an existing resource to be assigned to task. Enter unit of assignment.
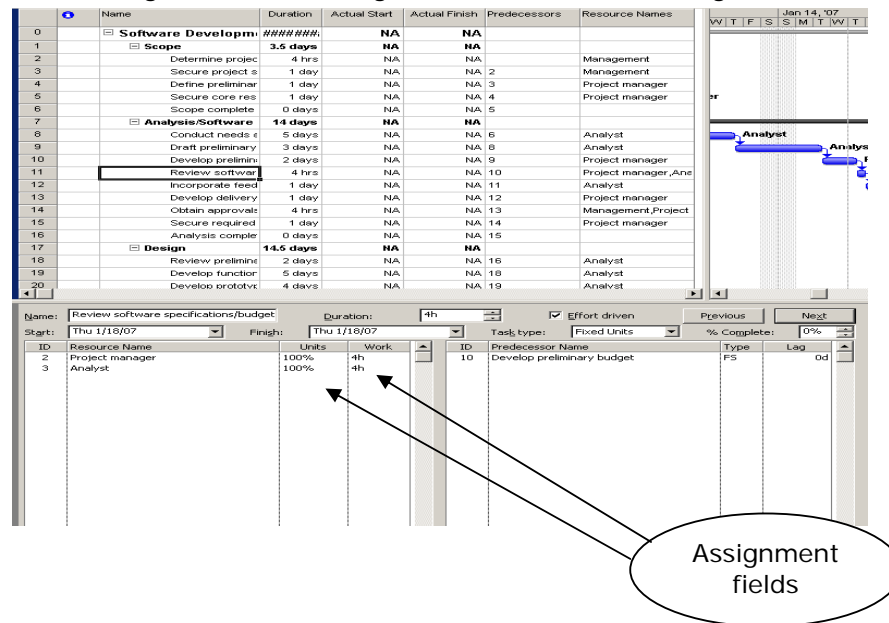
Fig 5.5: Assigning Resources in the task form

4. Resource Information

The Resource Information dialog box allows the user to define all information about the selected resource.
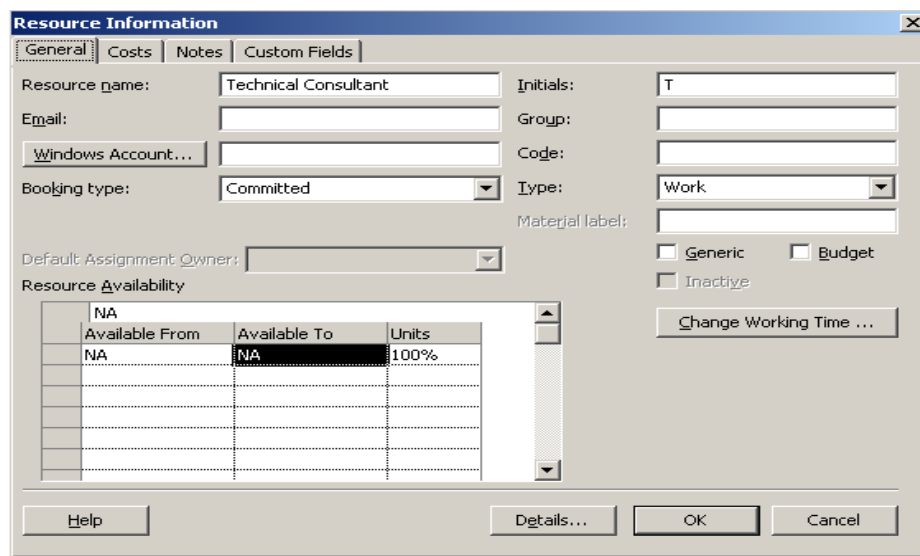
Fig 5.6: Resource Information

General Tab

1. Under the General tab, it allows the user to define the details about the Resource, i.e. Name, Email, Initials, Group, Code, and Type of Resource.

2. You can also define the resource availability under the General Tab. This means to say that you can define for how long this resource is available in the project, i.e. define the Start and the Finish dates and also define his assignment units, if not done elsewhere.

3. It also allows the user to define a resource calendar for the selected user. For the same, select the

4. 'Change Working Time' button which opens the Calendar for the selected resource, as shown below,
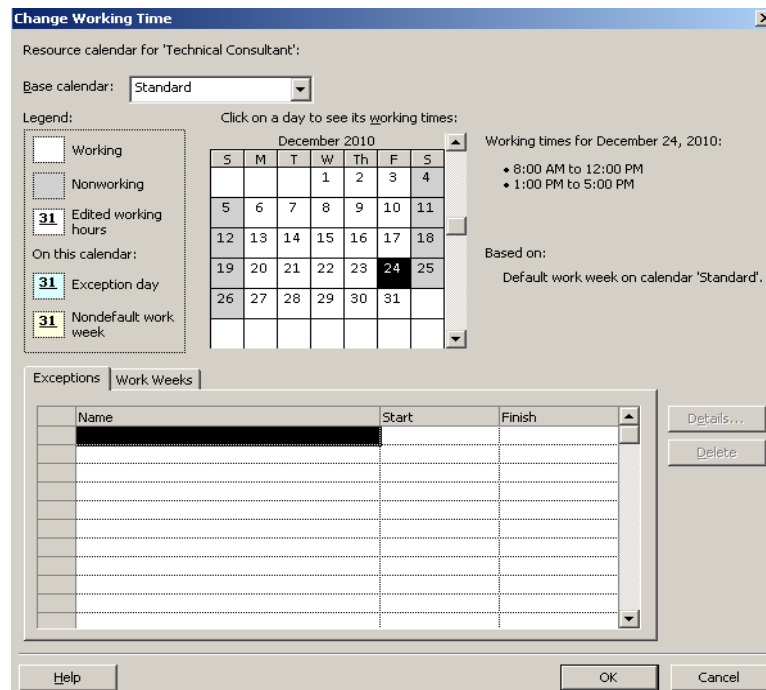
Fig 5.7: Resource calendar

5. Note at the top of this window, it states that this is the Resource calendar for 'Technical Consultant'.

6. You can define the working times and holidays for Technical Consultant in this calendar.

7. The Resource calendar has higher priority than the Task and Project calendar.

8. You can also define any Exceptions in Technical Consultant working time.

Notes Tab

1. The user can enter notes specific for a resource.
2. The user also has the option to attach a new object or an existing object to a resource.

Resource Leveling

Another potential area where errors can creep into project schedules impacting the delivery of a project is that of overallocation of resources. An overallocation is where a resource is assigned more work than they have capacity to complete it. For example, a resource works an eight hour day and is assigned two tasks, each of eight hours effort, both scheduled to occur on the same day as shown below.

	ⓘ	Task Name	Work	Start	Resource Names	),'10						Jan 1
						T	W	T	F	S	S	M
1		Task 1	8 hrs	Wed 1/13/10	Resource 1		Resource 1					
2		Task 2	8 hrs	Wed 1/13/10	Resource 1		Resource 1					

As the resource cannot complete both tasks at the same time, a resource over allocation will occur.

Microsoft Project 2010 makes it very simple to identify when there is a resource over allocation

On the Resource Sheet view, the resource will be colored red.

	ⓘ	Resource Name	▼	Type	▼	Material	▼	Initials	▼
1	◈	Resource 1		Work				R	

On the Gantt chart view, the task will have a red person indicator next to it.

There are a couple of ways that a resource overallocation can be corrected

Manual correction

The simplest method is to manually correct the overallocation. This is most easily achieved by setting a filter on the Gantt chart against the overallocated resource and identifying where tasks are occurring on the same day. Once identified, the tasks can be moved manually by changing the start date, moving the Gantt chart item with the mouse, or moving the hours in the resource usage sheet.

Team Planner

Project 2010 includes a new feature that can assist in resolving Overallocations called the Team Planner. Only available in Project Professional 2010, this feature is designed to provide a simple interface to assign resources to tasks, schedule those tasks, and identify and correct resource Overallocations. To invoke the team planner, select the Team Planner view from the view menu.

The default team planner view consists of four quadrants containing:

· Resourced / Unscheduled tasks

· Resourced / Scheduled tasks

· Unassigned / Unscheduled tasks

· Unassigned / Scheduled tasks

To correct the over allocations you can either right click on the resource name and choose Level Resource, or drag and drop Task to the next day to remove the overallocation

Leveling

Project 2010 include a leveling feature that enables the project schedule resourcing to be leveled either automatically or manually
Select the Resource tab and Level grouping.

The leveling feature has a variety of options that the user can select when leveling, including the calculation type, the order in which leveling should occur (either based on task id, task priority or standard which is based on a combination of predecessors, slack, dates, priorities and constraints).
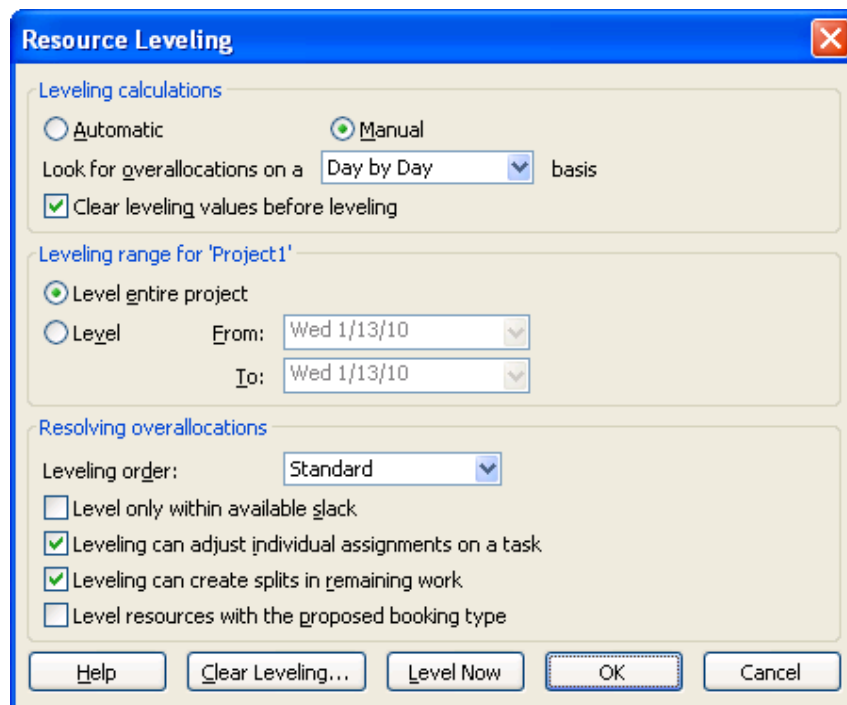
EXERCISE

1. Create following resources using the Resource Sheet: -

Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate
Rahul Sharma	Work		R		100%	$100/hr	$50/hr
Abhishek Sharma	Work		A		100%	$100/hr	$50/hr
Ashish Handa	Work		A		100%	$200/hr	$200/hr
Shailesh Watsan	Work		S		100%	$50/hr	$50/hr
Smita Thakur	Work		S		100%	$200/hr	$200/hr

2. Put Abhishek Sharma, Shailesh Watsan, and Smita Thakur in group named "Technical".

3. Put Rahul Sharma and Ashish Handa in "HR" group.

4. Make sure that the booking type is "Committed" for all the resources.

5. Create a Generic Resource named "Assistant".

6. Make Saturdays non working for Ashish Handa and Smita Thakur.

7. Give Leave to Shailesh Watsan from 10th Jan 2008 to 14th Jan 2008. Make these days nonworking for him.

8. Provide Std. Rate- $150/hr, Ovt. Rate- $100/hr effective from 1st Feb 2008 for Rahul Sharma.

9. Assign resources to below mentioned tasks: -

Resource Name	Tasks Assigned
Rahul Sharma	Create a Budget
	Determine a Menu
Abhishek Sharma	Select Room
	Confirm Space
	Confirm caterer one week before the meeting
Ashish Handa	Request Purchase Order
	Schedule Speakers
	Arrange for Audiovisual Equipments
Shailesh Watsan	Award Contract
	Give final headcount to caterer
	Send out invitations
	Mail out Annual reports
Smita Thakur	Send out request for bids
	Receive all estimates
	Review estimates

10. View Resource Usage.

11. Provide resource notes for Rahul Sharma.

12. View over allocated resources.

13. Apply Resource Leveling to remove over allocation of the resource.

14. Provide File Open and File Modify passwords for security purpose.

15. Save your Project Plan.

Notes