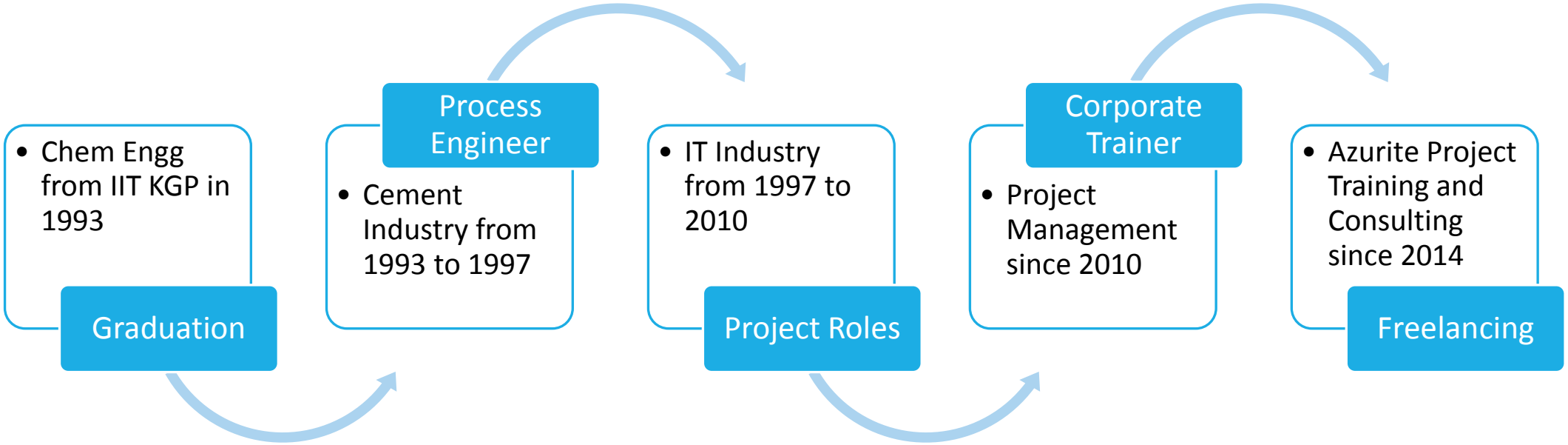
Scheduling - Concepts and MS Project

About the Faculty- Venkat Annapragada



About the Student

Please give a brief introduction covering the following aspects:

- Education
- Work Experience – Years, Industry, Roles
- Project Management Experience
- Purpose of wanting to learn Microsoft Project
- Anything else you think is important for me to know

OVER TO YOU !

Agenda

1. BASICS OF PROJECT AND PROJECT MANAGEMENT

- Definition of Project
- Definition of Project Management
- Product Life Cycle and Project Life Cycle
- Constraints in a Project
- Essential Conditions for success of a project

2. WORK BREAKDOWN STRUCTURE

- Create WBS
- WBS based on phases of Project
- WBS based on Major Deliverables of Project
- WBS for construction Project
- Exercise

3. ESTIMATION

- Principles of Estimation
- Bottom Up Estimation using WBS

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4. BASICS OF SCHEDULING

- Understanding a Schedule
- What is Scheduling?
- Examples of Schedules
- Define Activities
- Sequence Activities
- Precedence Diagramming Method
- Types of Relationships
- Types of Dependencies
- Task Network Diagram
- Activity Duration
- Critical Path Method
- Exercise

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5. MICROSOFT PROJECT – STEP 1

- Layout
- Setup Options
- Task Types
- Setup Work Column
- Setup Project Information

6. MICROSOFT PROJECT – STEP 2

- Entering Tasks
- Task Duration Calculation
- Task Rule
- Summary Task and Milestone Task
- Creating Tasks in WBS Format

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7. MICROSOFT PROJECT – STEP 3

- Task Relationships
- Setting Parallel Paths
- Types of Task Links
- Constraints and Deadlines
- Setting a Constraint
- Setting a Deadline

8. MICROSOFT PROJECT – STEP 4

- Calendars and Creating a Calendar
- Resources and Assigning Resources
- Over Allocation of Resources
- Resource Levelling
- Guidelines for Resource Levelling

Agenda

9. MICROSOFT PROJECT – STEP 5

- Baseline
- Tracking
- Reports
- Impact of Task Types
- Manual Scheduling

Definition of Project

A Project has the following three characteristics :

- UNIQUE

Every project creates a different product, service or result. E.g, construction of a shopping mall. Assembly line manufacture of car parts is NOT a project.

- TEMPORARY

Project has a definite beginning and end. Project is said to complete once objectives are achieved. E.g., construction of flyover with a project deadline. Ongoing work in HR and Finance departments are NOT projects.

- PROGRESSIVELY ELABORATED

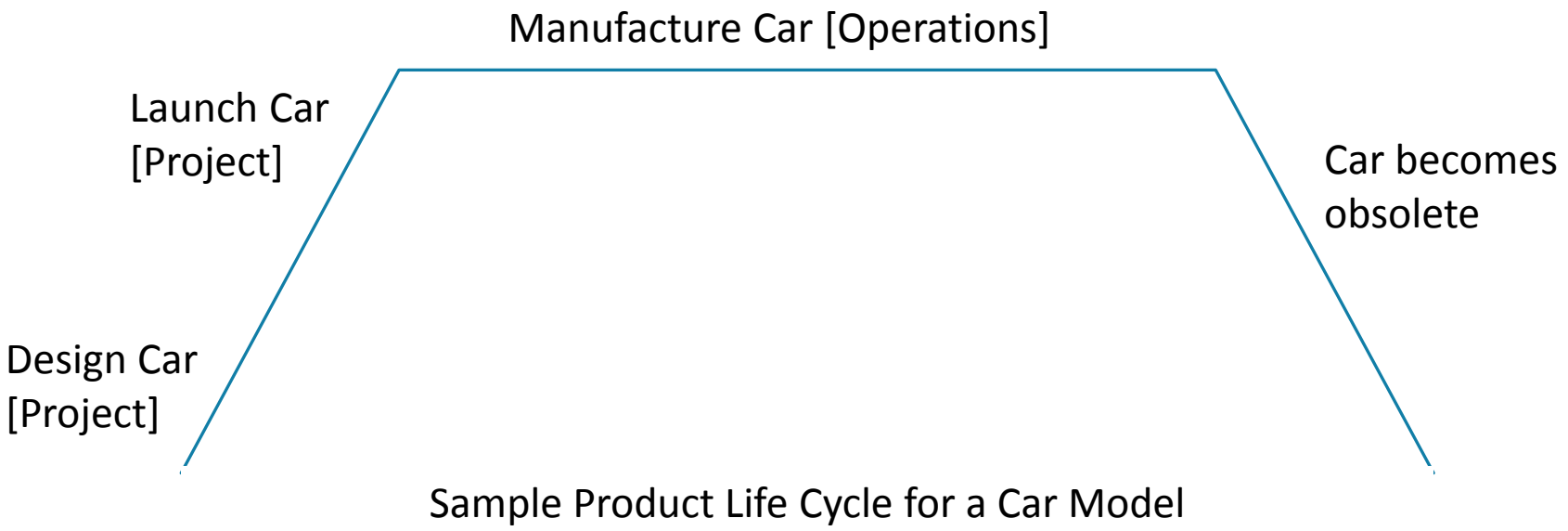
The project scope is broadly described early in the project and made more explicit as the project progresses. E.g., When starting to build a house you need to have a broad layout plan in front of you which will be elaborated as the construction progresses.

Definition of Project Management

The application of KNOWLEDGE, SKILLS, TOOLS and TECHNIQUES to project activities to meet project requirements

Product Life Cycle

A Product Life Cycle is undertaken to launch a Product. It may have SEVERAL PROJECTS [each with their own project life cycles] and OPERATIONS. Product phases are generally SEQUENTIAL and NON-OVERLAPPING.



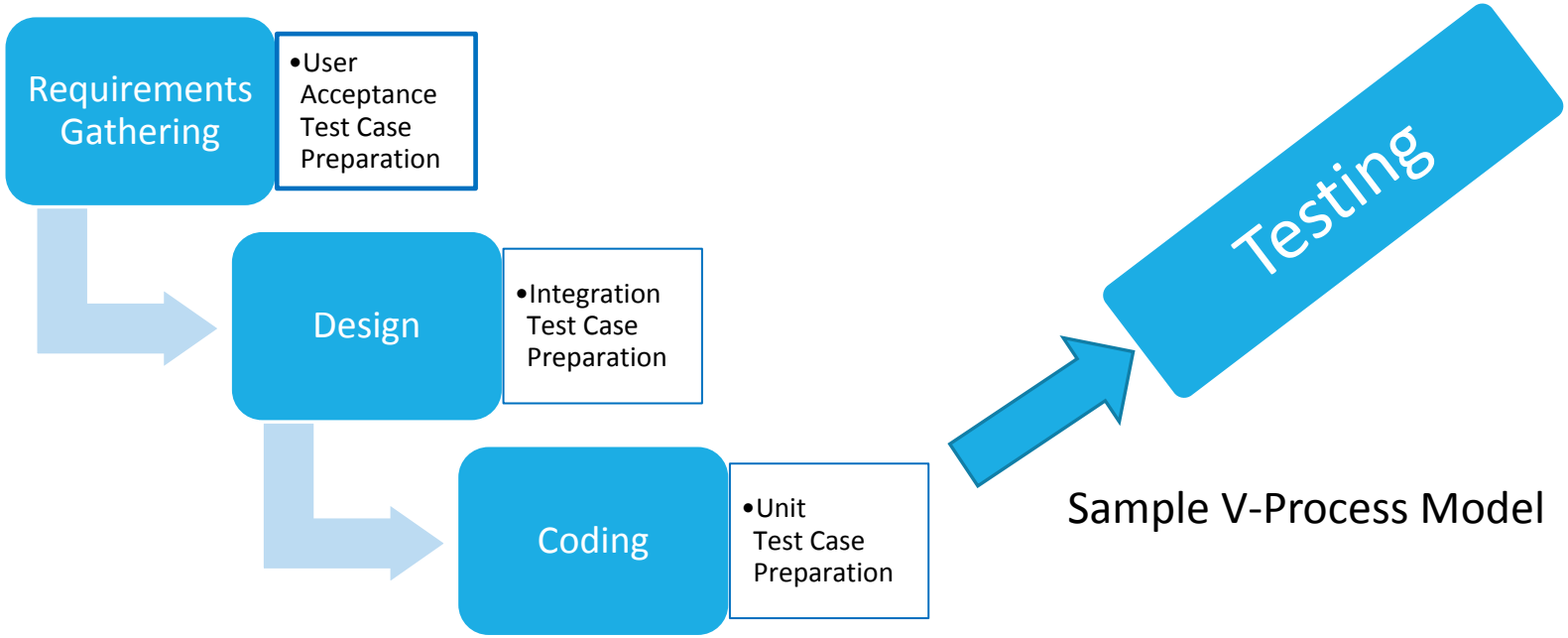
Sample Product Life Cycle for a Car Model

Project Life Cycle

- Project Life Cycle includes all phases required for a project to create a product, service or result
- It is Industry specific and can be different for different projects
- It is divided into project phases for better control of the project
- Phase end reviews are conducted to assess project progress
- Phases can be either sequential or overlapping
- Phases can occur only once or be Iterative
- Common Project Life Cycles in IT Industry :
    i. Waterfall Model
    ii. V-Process
    iii. Agile

Project Life Cycles in IT Industry

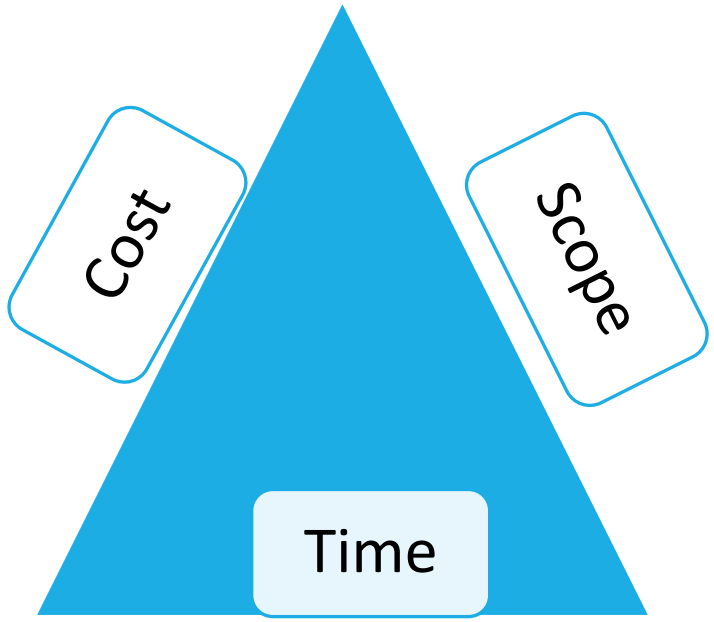
Sample Waterfall Model



Sample V-Process Model

Constraints in a Project

- Constraints are factors which project managers must manage simultaneously in a project.
- The three major factors are Scope, Time and Cost which are also called as Triple Constraints.
- Other important factors are quality, customer satisfaction, risk and human resources.



Conditions for Project Success

When do we say a Project is successful?

A. When Project satisfies Predefined Project Success Criteria relating to TIME, COST and QUALITY

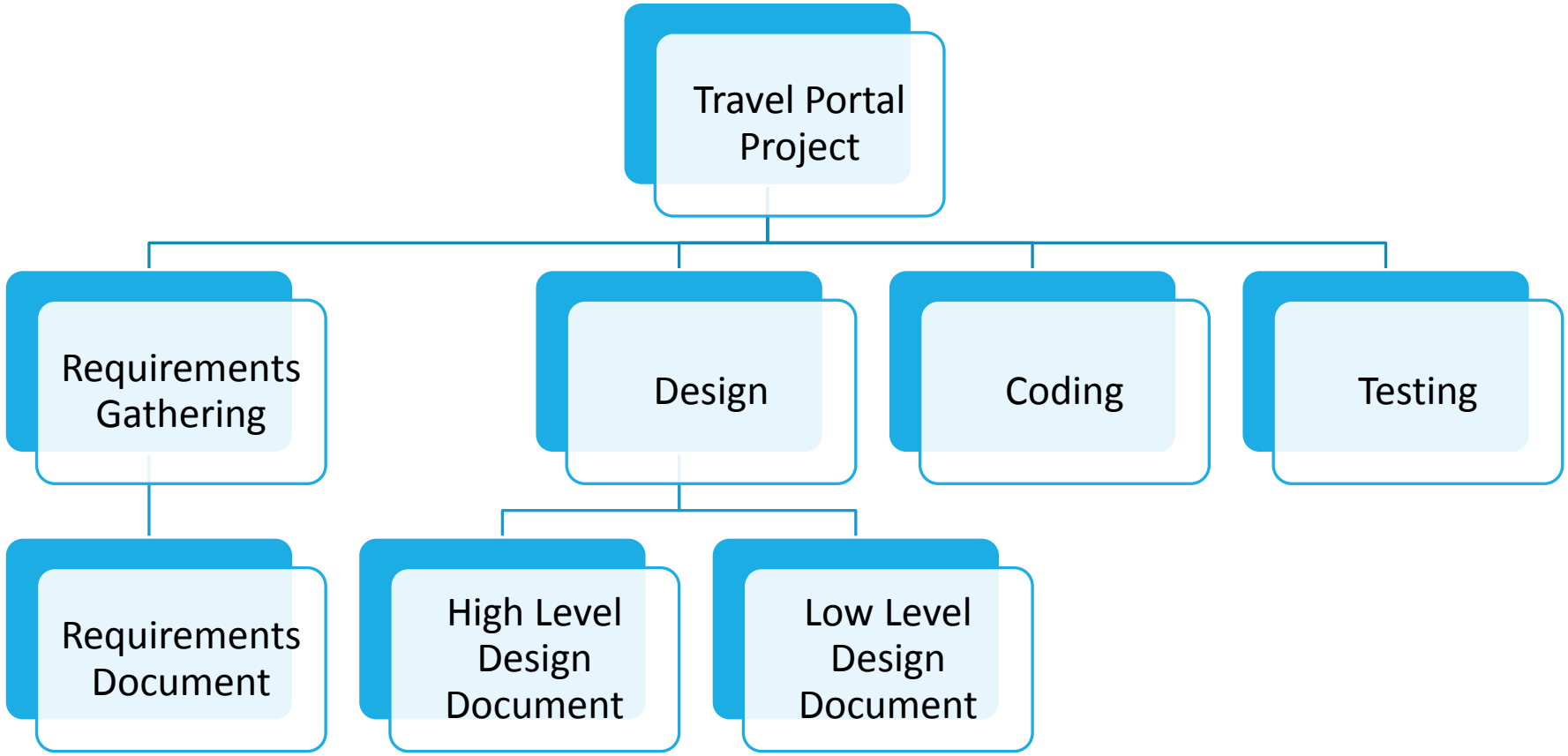
- Top 5 conditions for Projects to be successful:
  i. Thorough Project Planning and review throughout the Project
  ii. Overall Goals of the Project should be clearly specified
  iii. Project should have clear reporting and communication lines
  iv. The core project team needs to be fully competent
  v. All important stakeholders should be committed to Project's success

Source : https://www.apm.org.uk/conditions-for-project-success

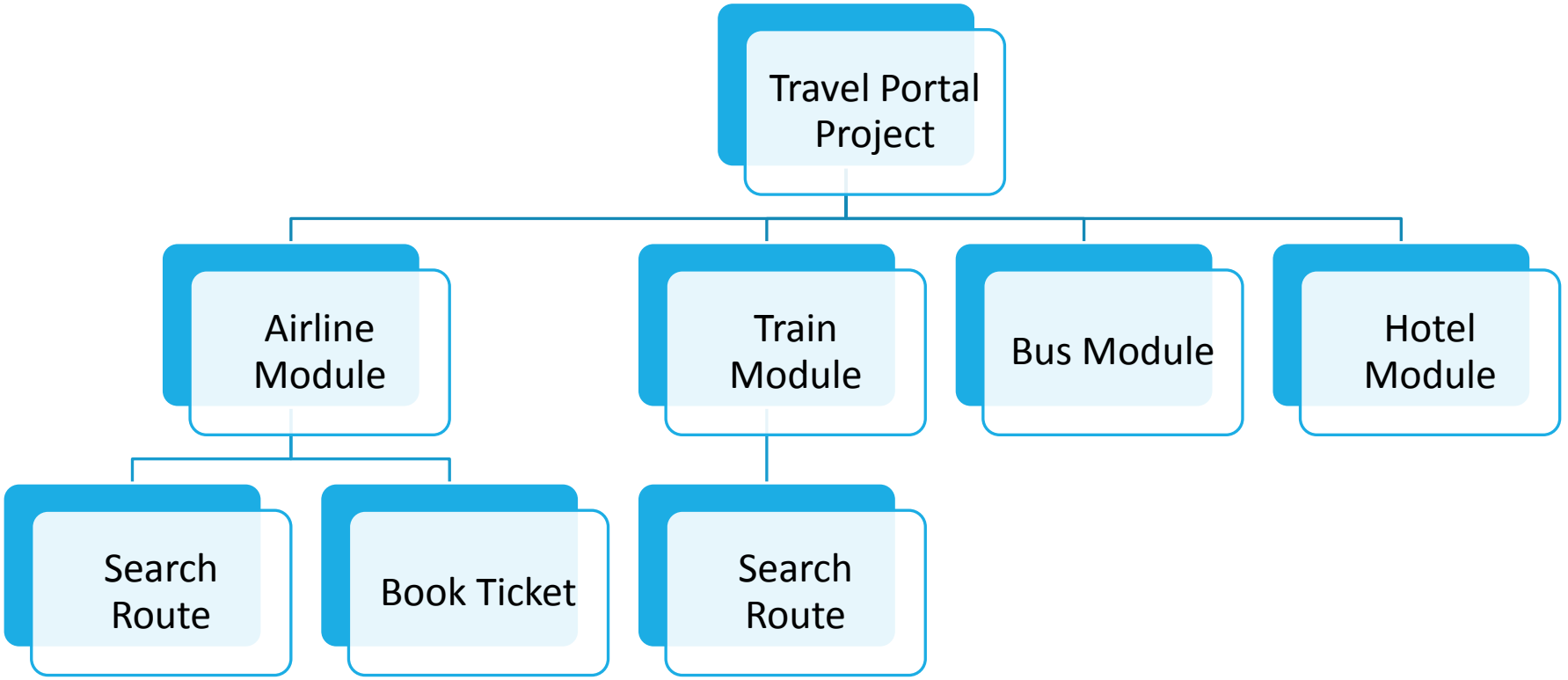
Create WBS

- After defining project scope, the project deliverables need to be broken down into smaller, more manageable components
- This is done by a technique called Decomposition which produces the Work Breakdown Structure [WBS]
- WBS is an hierarchical decomposition of the work to be carried out.
- The deliverables are identified at the lowest level of the WBS known as Work Packages
- Work Packages are further decomposed into activities that represent the work effort required to complete the work package
- WBS can be created based on the phases of the project or based on the major deliverables

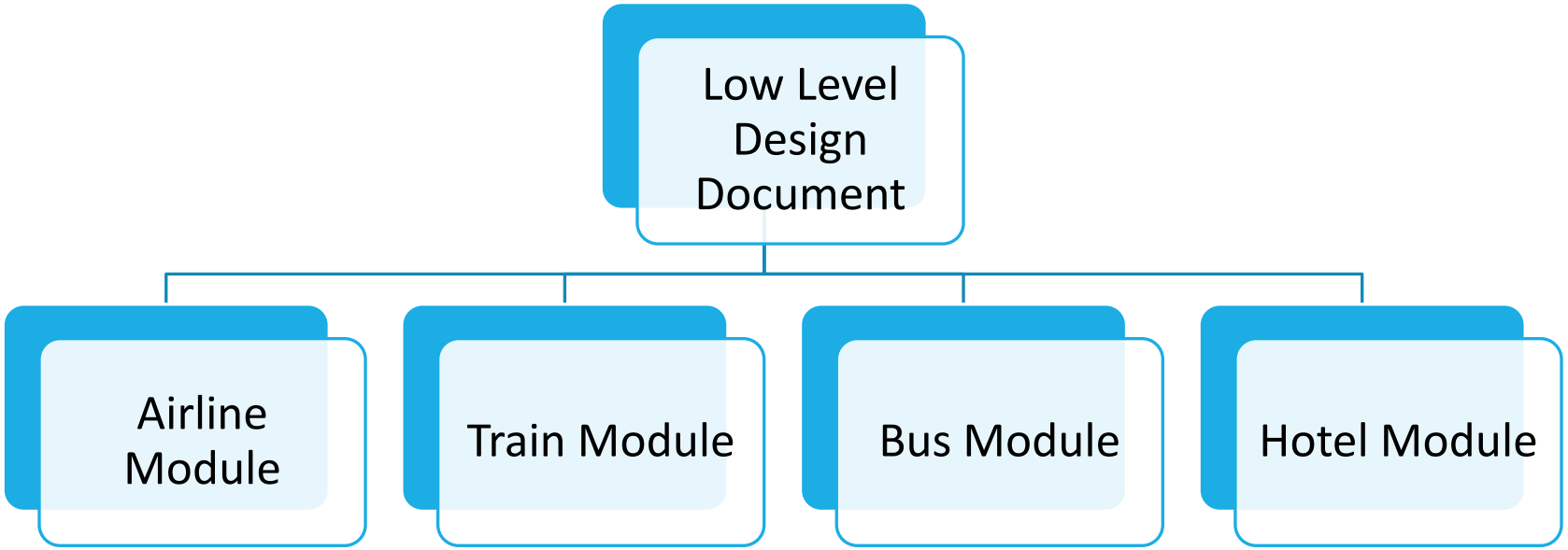
WBS – based on Phases of Project



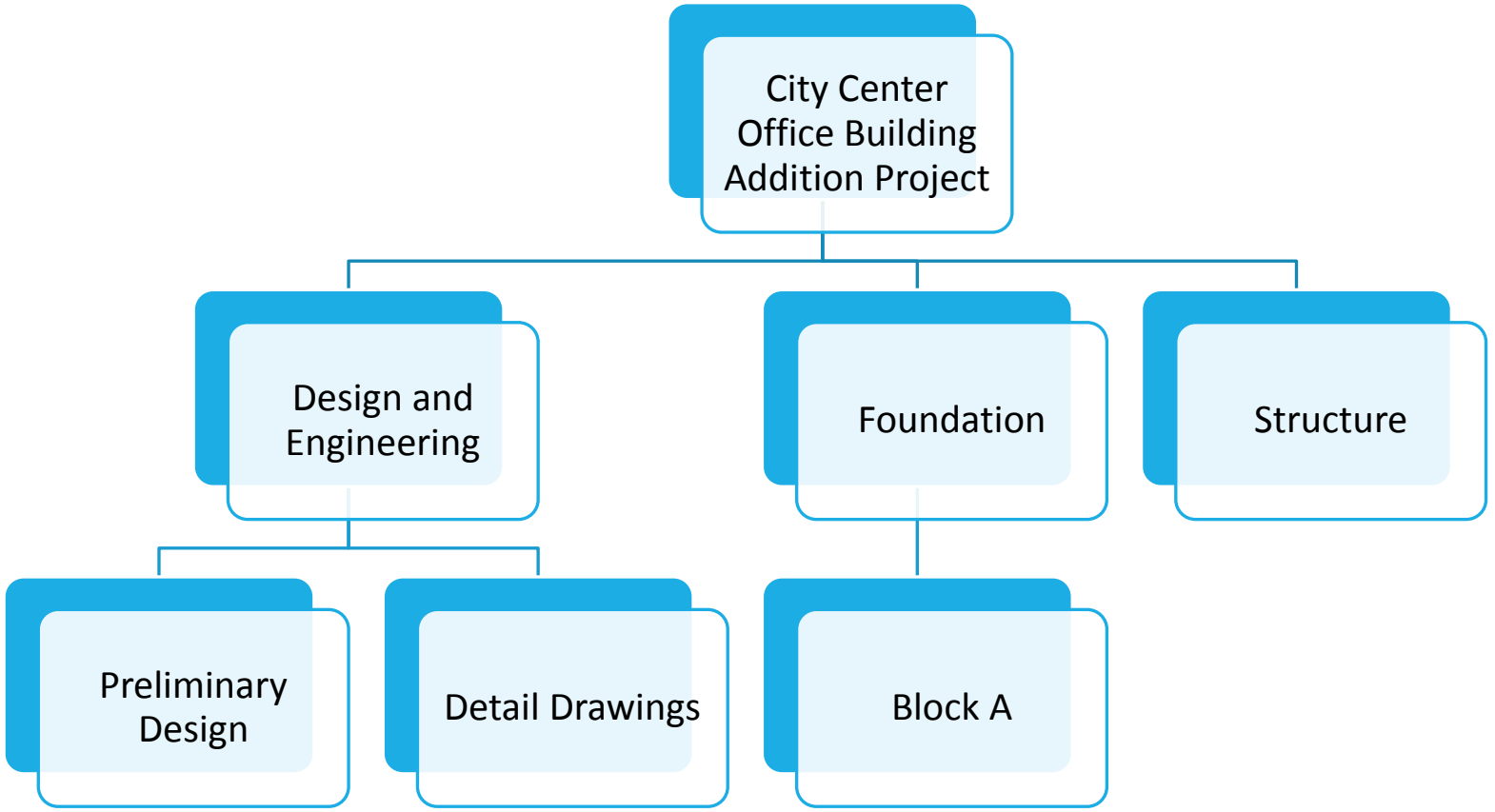
WBS – based on Major Deliverables



WBS – Combination of phases and deliverables



WBS for Construction Project



Exercise

For your current/previous Project :

- Create WBS based on phases of Project
    i. Identify phases of Project
    ii. Identify Work Packages for each phase
    iii. Identify Activities for each Work Package

- Create WBS based on major deliverables of Project
    i. Identify major deliverables of Project
    ii. Identify Work Packages for each major deliverable
    iii. Identify Activities for each Work Package

Principles of Estimation

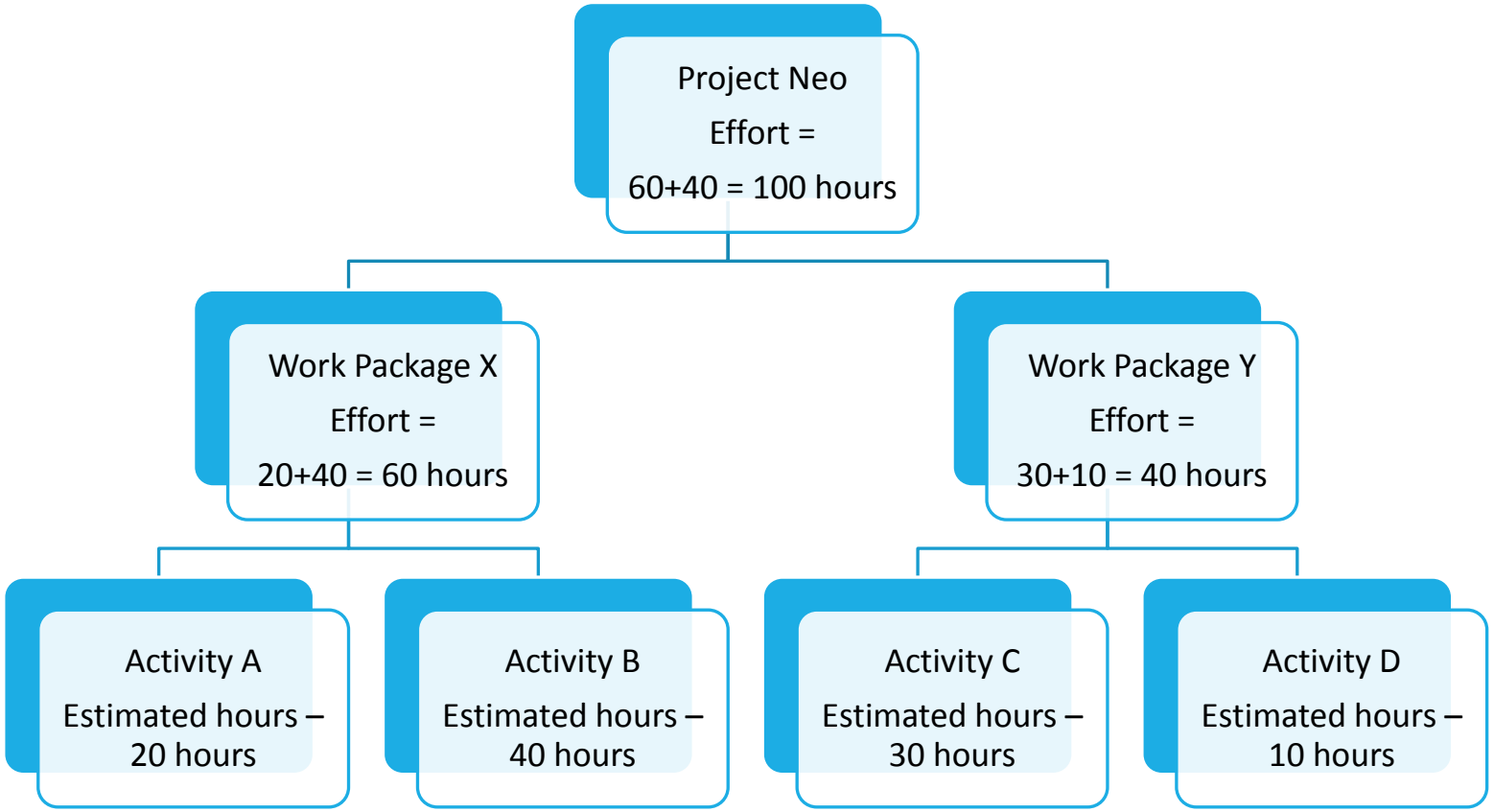
- Estimate is an FORECAST of the Effort or Duration or Cost of a Project
- It is usually expressed as a point estimate with an percentage range of variance
- Lower the variance more the accuracy of the Estimate
- Rarely Estimate can be given with 100% Accuracy
- Example:
  i. Estimated Man-hours required to construct a house is 50000 hours +/- 20%
  ii. Estimated Duration to complete construction of a house is 12 months +/- 10%
  iii. Estimated Cost of constructing an house is 30 Lakhs +/- 15%
- To be able to Estimate Effort/Duration/Cost it is necessary to know the Size of the Project
- Size of Project is calculated based on Requirements
- Hence accuracy of Estimates depends on Clarity of Requirements

Bottom Up Estimation

Bottom Up Estimation:

- Can be used when requirements are well defined.
- WBS is prepared for all requirements and work packages identified.
- Activities for all work packages are identified.
- Estimation is done for each activity of a work package with the greatest level of specified detail and then aggregated.
- Other Estimation techniques can also be used to estimate at activity level.
- The estimate for a work package is the cumulative effort of all activities of that work package.
- The estimates of all work packages are then “rolled up” to derive estimates of different phases of project as well as overall project.
- This is called as 100% Rule. The estimate of a parent node is equal to cumulative estimates of its child nodes.
- This technique is time consuming and costly. But also more accurate than other techniques.

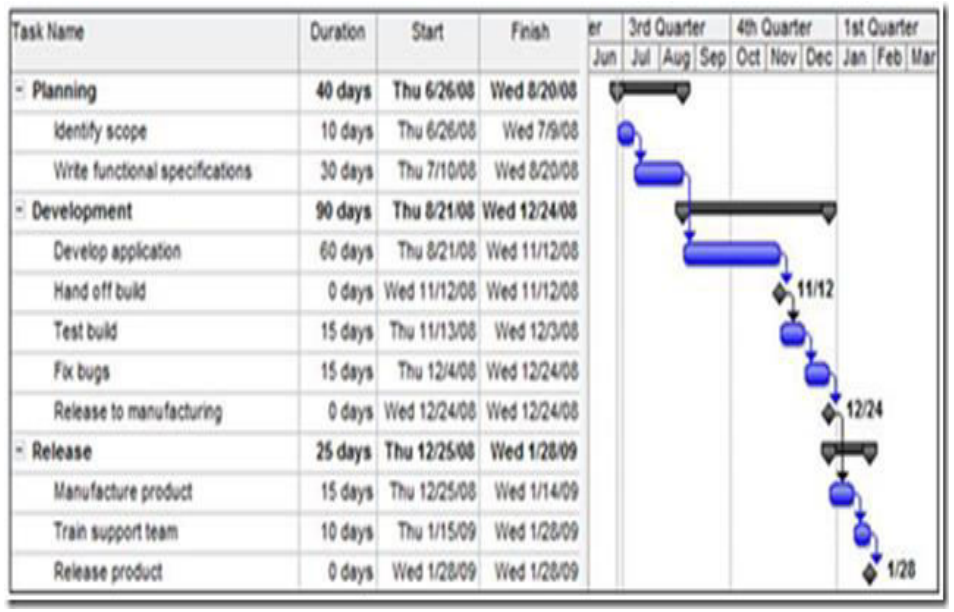
Bottom Up Estimation - Example



Understanding a Schedule

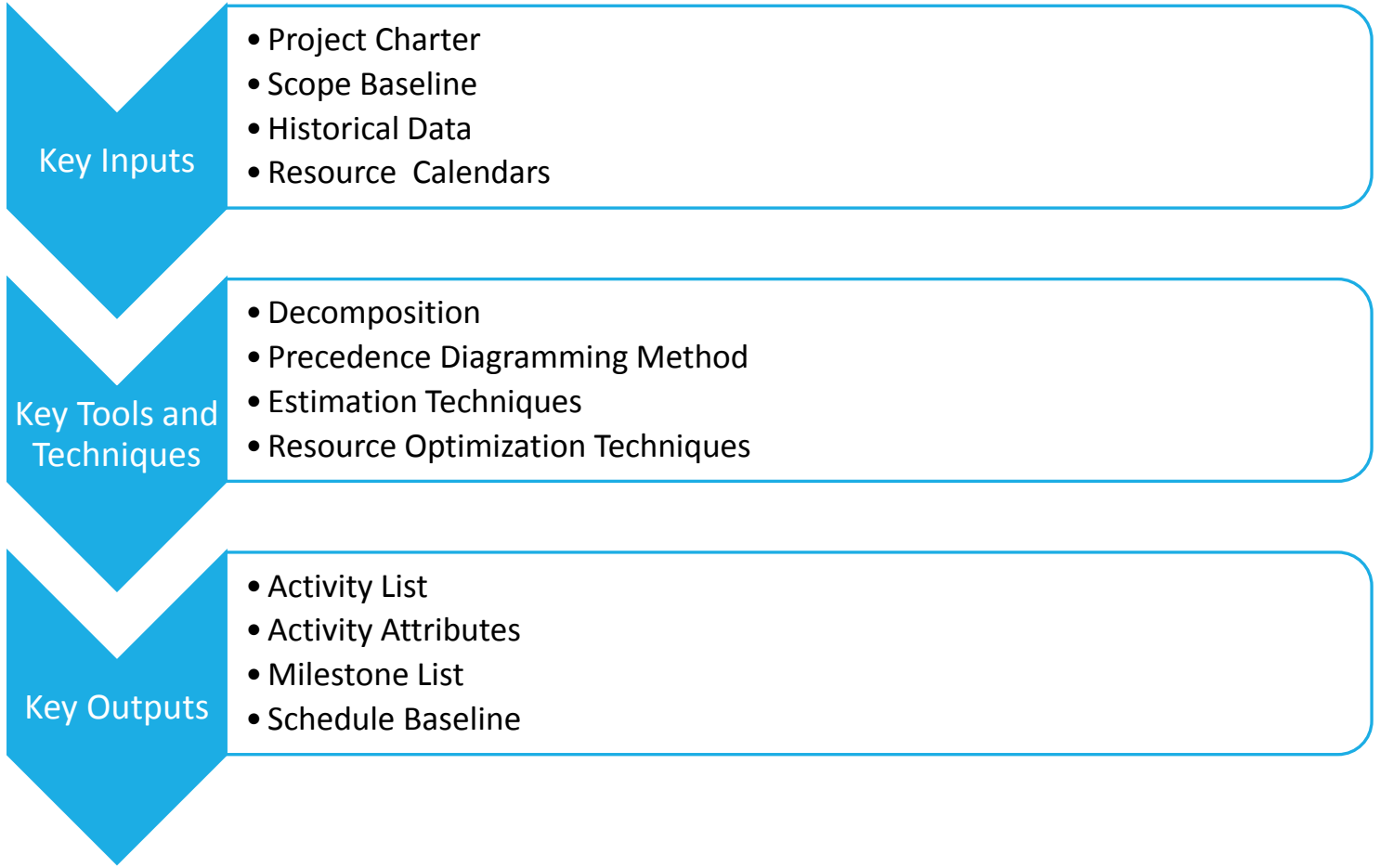
A schedule or a timetable, as a basic time-management tool, consists of a list of times at which possible tasks, events, or actions are intended to take place, OR of a sequence of events in the chronological order in which such things are intended to take place. ~ Wikipedia

Date/Day	Match	Place	Day/Night
Feb 14 - Sat	New Zealand v Sri Lanka	Christchurch	Day
Feb 14 - Sat	Australia v England	Melbourne	Day/night
Feb 15 - Sun	South Africa v Zimbabwe	Hamilton	Day/night
Feb 15 - Sun	India v Pakistan	Adelaide	Day/night
Feb 16 - Mon	Ireland v West Indies	Nelson	Day
Feb 17 - Tue	New Zealand v TBC	Dunedin	Day
Feb 18 - Wed	Bangladesh v Afghanistan	Canberra	Day/night
Feb 19 - Thu	Zimbabwe v TBC	Nelson	Day
Feb 20 - Fri	New Zealand v England	Wellington	Day/night
Feb 21 - Sat	Pakistan v West Indies	Christchurch	Day
Feb 21 - Sat	Australia v Bangladesh	Brisbane	Day/night
Feb 22 - Sun	Afghanistan v Sri Lanka	Dunedin	Day
Feb 22 - Sun	India v South Africa	Melbourne	Day/night
Feb 23 - Mon	England v TBC	Christchurch	Day
Feb 24 - Tue	West Indies v Zimbabwe	Canberra	Day/night
Feb 25 - Wed	Ireland v TBC	Brisbane	Day/night
Feb 26 - Thu	Afghanistan v TBC	Dunedin	Day



What is Scheduling ?

Scheduling is the process of arriving at a schedule using appropriate tools and techniques given certain inputs



Examples of Schedules

School Time Table

Airport/Railways/Bus Schedules

Cricket Match Schedules

Anything else you can think of ?

How important is scheduling in above examples?

As you can see Scheduling as a concept is used widely and is not specific to only Project Management

In PMBOK Scheduling is part of Time Management process group which has the highest number of processes defined among all Knowledge groups [7]

Define Activities

- The WBS work packages are further broken down into ACTIVITIES or TASKS.
- This results in what is called as an Activity List.
- Activity List includes all the activities that are required for the project and described in sufficient detail so that others can understand.
- Example: Activity List for Work Package “High Level Design Document”

Activity ID	Activity Name
1.2.1.1	Get Inputs for High Level Design Document
1.2.1.2	Prepare High Level Design Document
1.2.1.3	Review High Level Design Document
1.2.1.4	Rework High Level Design Document
1.2.1.5	Obtain Sign Off from Customer

Define Activities

Activity List for Work Packages under “Low Level Design Document”

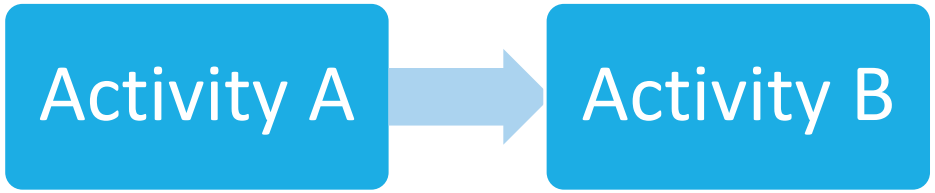
Module	Activity ID	Activity Name
Airline Module	1.2.2.1.1	Prepare Low Level Design Document
	1.2.2.1.2	Review Low Level Design Document
	1.2.2.1.3	Rework Low Level Design Document
Train Module	1.2.2.2.1	Prepare Low Level Design Document
	1.2.2.2.2	Review Low Level Design Document
	1.2.2.2.3	Rework Low Level Design Document
……		
	1.2.2.5	Consolidate all LLD’s
	1.2.2.6	Obtain Sign Off from Customer

Sequence Activities

- Identify and document relationships among project activities.
- Tasks have an inherent dependency with few other tasks.
- For example testing activity depends on coding activity to have already been performed. Hence we can say that PREDECESSOR of testing activity is coding activity. These type of tasks need to be done in sequence.
- Few tasks do not have dependency on each other. For example coding for different modules A and B can be independent of each other. Such tasks can be done in parallel.
- Identifying tasks which have the potential to be done in parallel is an important aspect of scheduling.

Precedence Diagramming Method

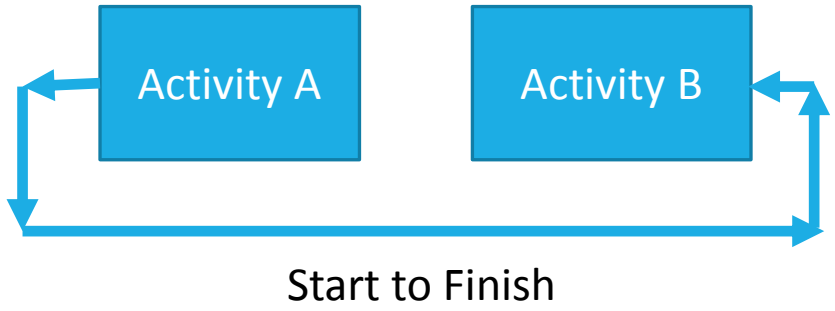
- Relationships among activities are shown using Precedence Diagramming Method [PDM].
- In this method all activities are shown in boxes/nodes. The nodes are connected with arrows that indicate the type of relationship.
- Example:

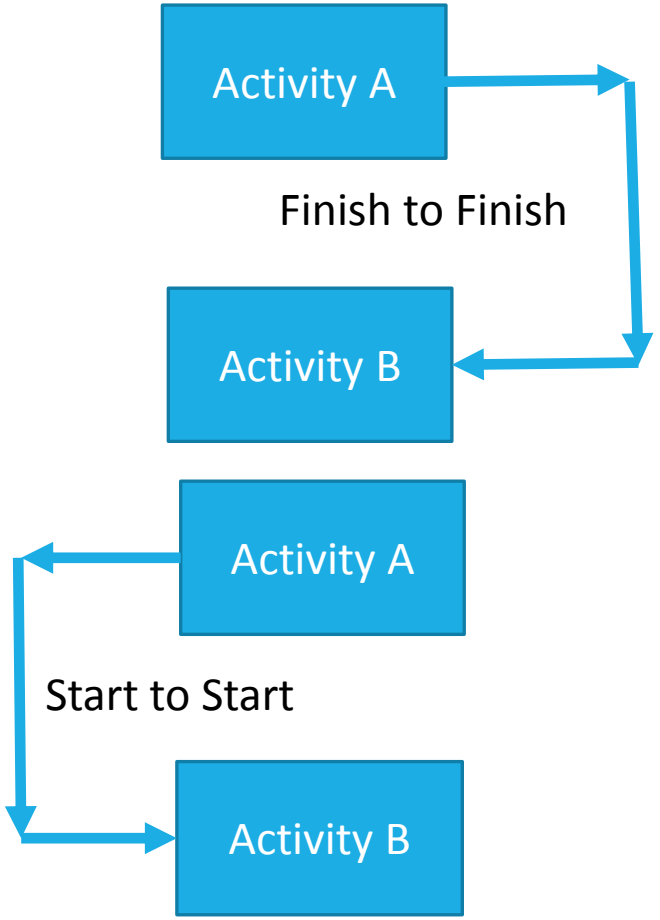


- Here Activity A is PREDECESSOR to Activity B.
- This is an example of Finish to Start Relationship since only on completion of Activity A can Activity B be started.

Types of Relationships

PDM can show four types of relationships :

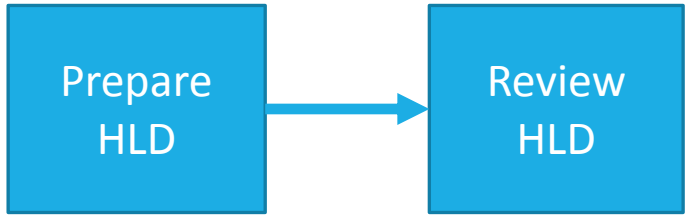




Types of Dependencies

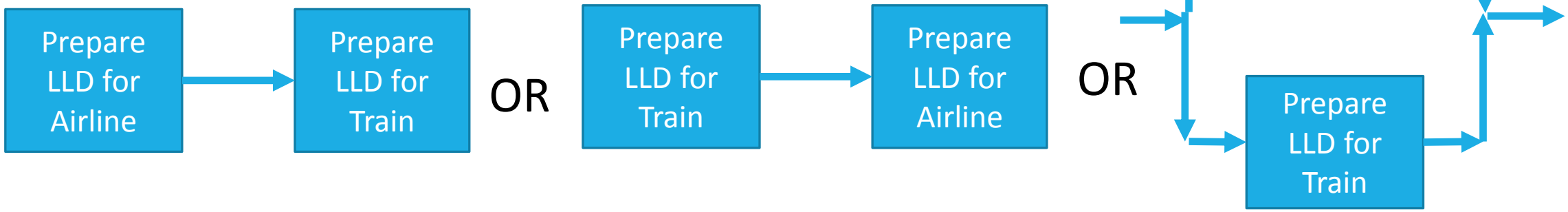
Mandatory Dependencies :

These are inherent in the nature of work or obligated by contract.



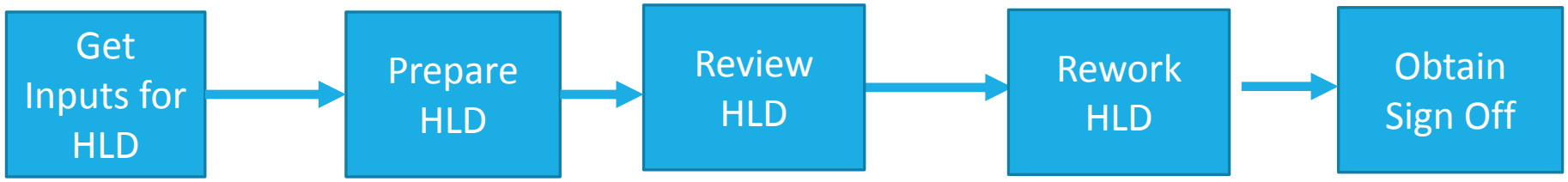
Discretionary Dependencies :

These are applied as industry practice or is desired in the project

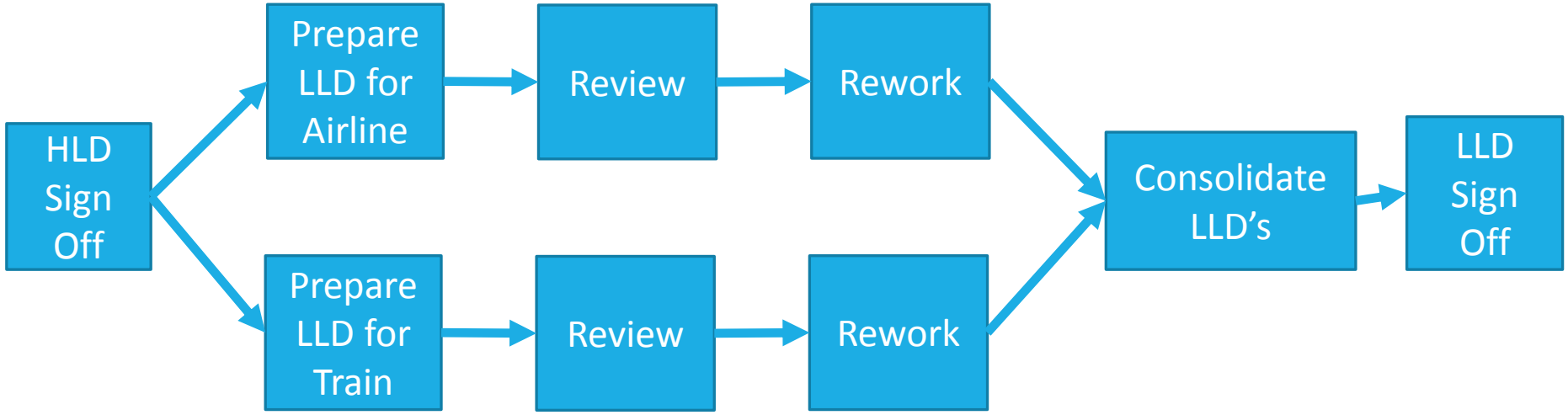


Task Network Diagram

Sequencing activities for Work Package “High Level Design Document”



Sequencing activities for Work Packages for “Low Level Design Document”



Activity Duration

- Number of work periods needed to complete the activity.
- Duration of an activity is calculated using the Task Rule which is as follows :

  Work = Duration * Resource Units

  i. Work is the Effort estimated for the activity. Various Estimation techniques discussed previously can be used. This is usually expressed in hours.
  ii. Resource Units equals the number of resources that are assigned to the activity and the number of hours per day they are available for this activity.
  iii. Duration calculated from above Rule is usually expressed in days.

- Example :

  An High Level Design Document is required to be prepared. It's estimated effort is 40 hours. Two resources are assigned to it. Both of them can spare 4 hours each daily for this activity. What is the Duration of this Activity ?

  Duration of activity is 5 days.

Critical Path Method [CPM]

This method involves the following steps :

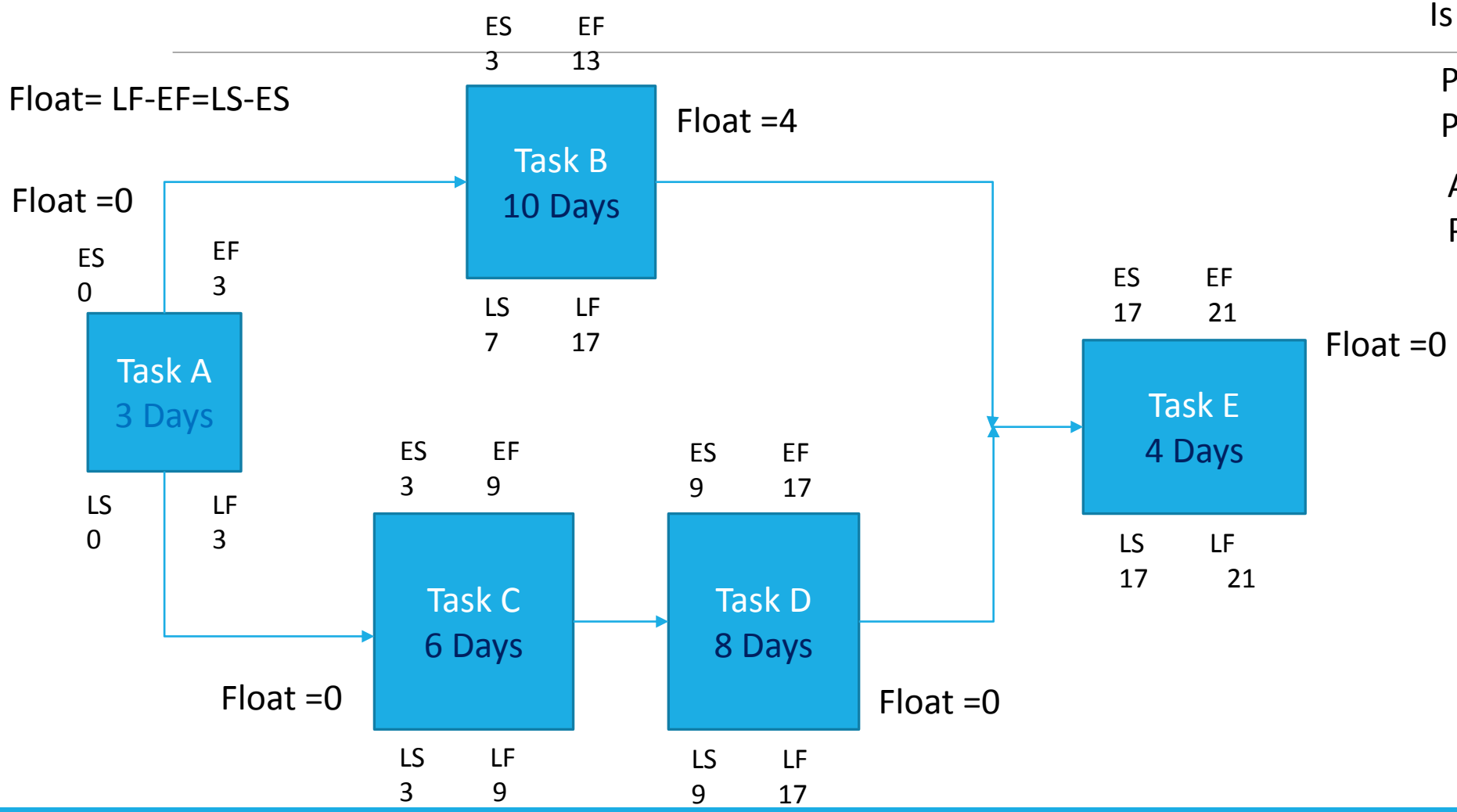
- Calculate the Duration for all activities on the Task Network Diagram.
- Calculate the early start [ES], early finish [EF], late start [LS] and late finish [LF] for all activities by using Forward pass and Backward pass techniques.
- Identify number of paths on the Network Diagram.
- Calculate the total duration of each path.
- Identify path with longest duration. This path is called Critical Path.
- The Critical Path Duration will be the MINIMUM Project Duration.
- Calculate Total Float for all activities with the formula [LS-ES] or [LF-EF].
- Total Float is the amount of time an activity can be delayed without delaying the project finish date. Float is also called as Slack.
- Identify Activities on Critical Path. These will have zero float which means they HAVE to start and finish on time.

Illustration

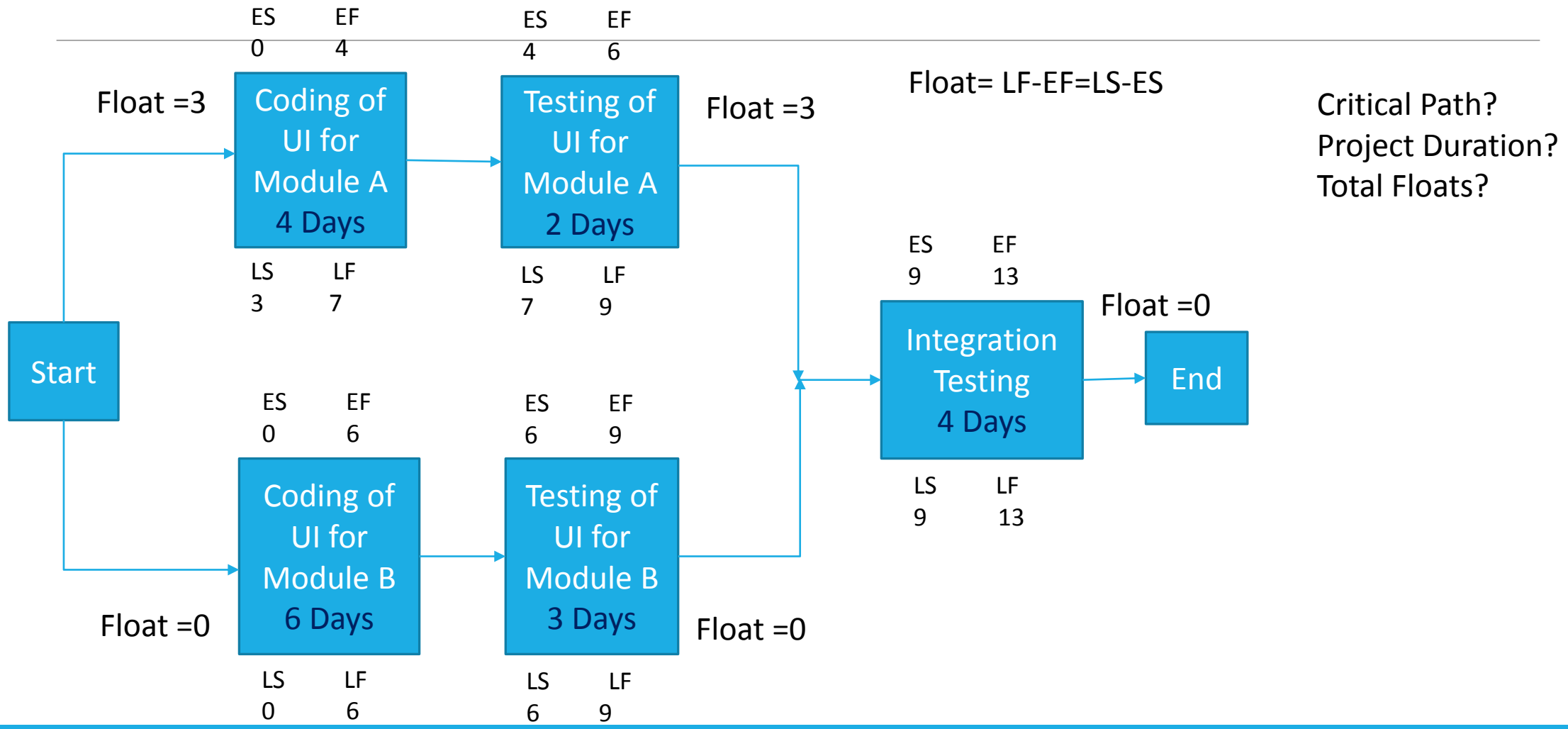
Customer wants Project to Be completed in 25 days. Is this feasible?

Path ABE = 17 days
Path ACDE = 21 days

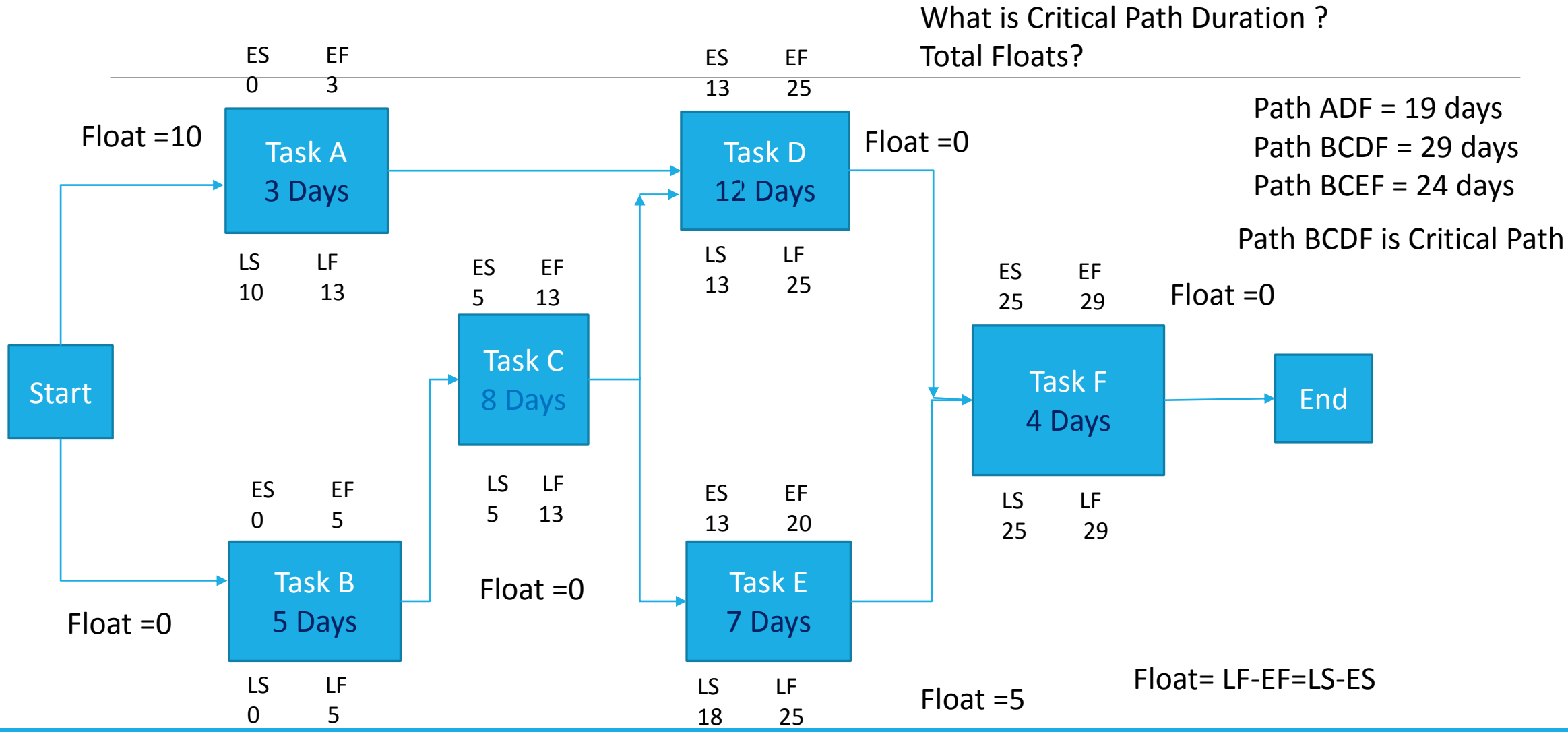
ACDE is Critical Path.
Project Duration is 21 days



Exercise

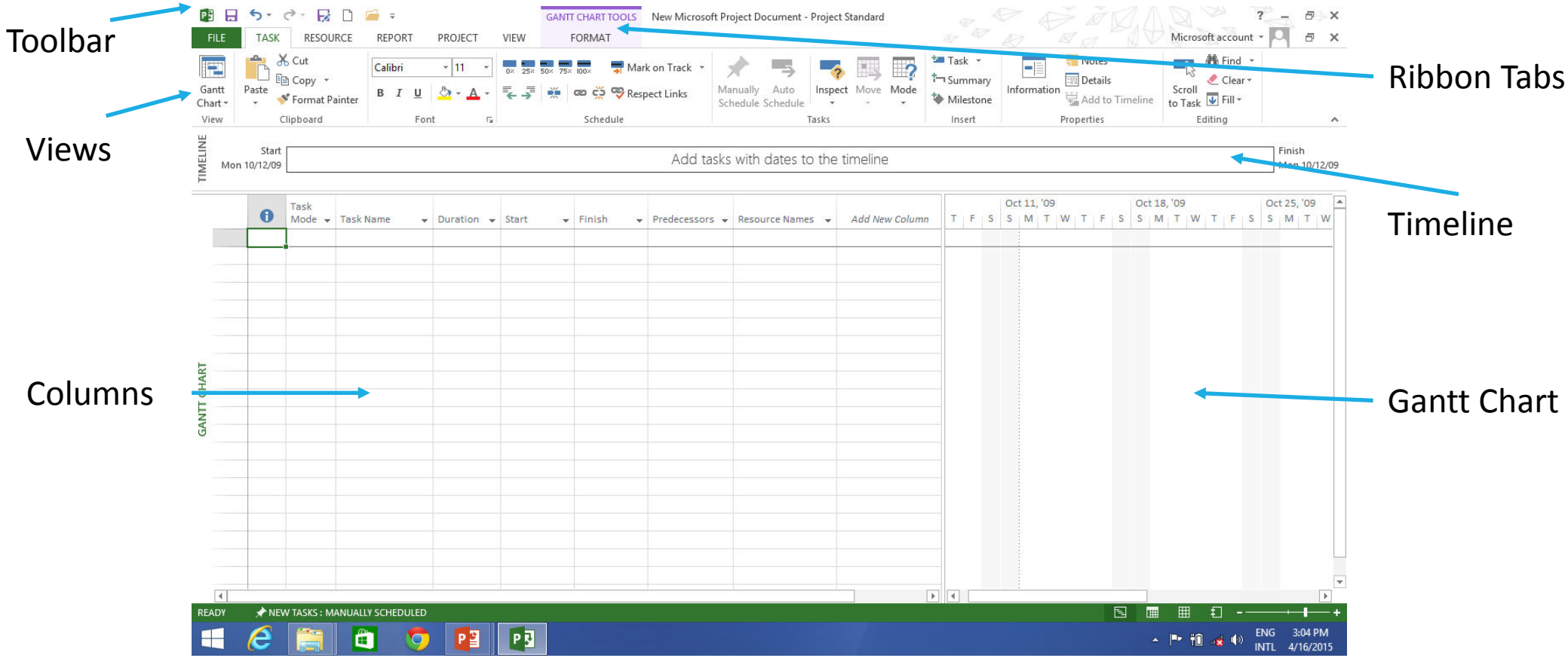

ES 0
EF 4
ES 4
EF 6
Float =3
Coding of UI for Module A 4 Days
Testing of UI for Module A 2 Days
Float =3
Float= LF-EF=LS-ES
Critical Path?
Project Duration?
Total Floats?
LS 3
LF 7
LS 7
LF 9
ES 9
EF 13
Float =0
Start
Integration Testing 4 Days
End
LS 9
LF 13
ES 0
EF 6
ES 6
EF 9
Coding of UI for Module B 6 Days
Testing of UI for Module B 3 Days
Float =0
Float =0
LS 0
LF 6
LS 6
LF 9

Exercise


What is Critical Path Duration ?
Total Floats?
ES 0
EF 3
Task A 3 Days
LS 10
LF 13
Float =10
ES 13
EF 25
Task D 12 Days
LS 13
LF 25
Float =0
Path ADF = 19 days
Path BCDF = 29 days
Path BCEF = 24 days
Path BCDF is Critical Path
Start
ES 5
EF 13
Task C 8 Days
LS 5
LF 13
Float =0
ES 25
EF 29
Task F 4 Days
LS 25
LF 29
Float =0
End
ES 0
EF 5
Task B 5 Days
LS 0
LF 5
Float =0
ES 13
EF 20
Task E 7 Days
LS 18
LF 25
Float =5
Float= LF-EF=LS-ES

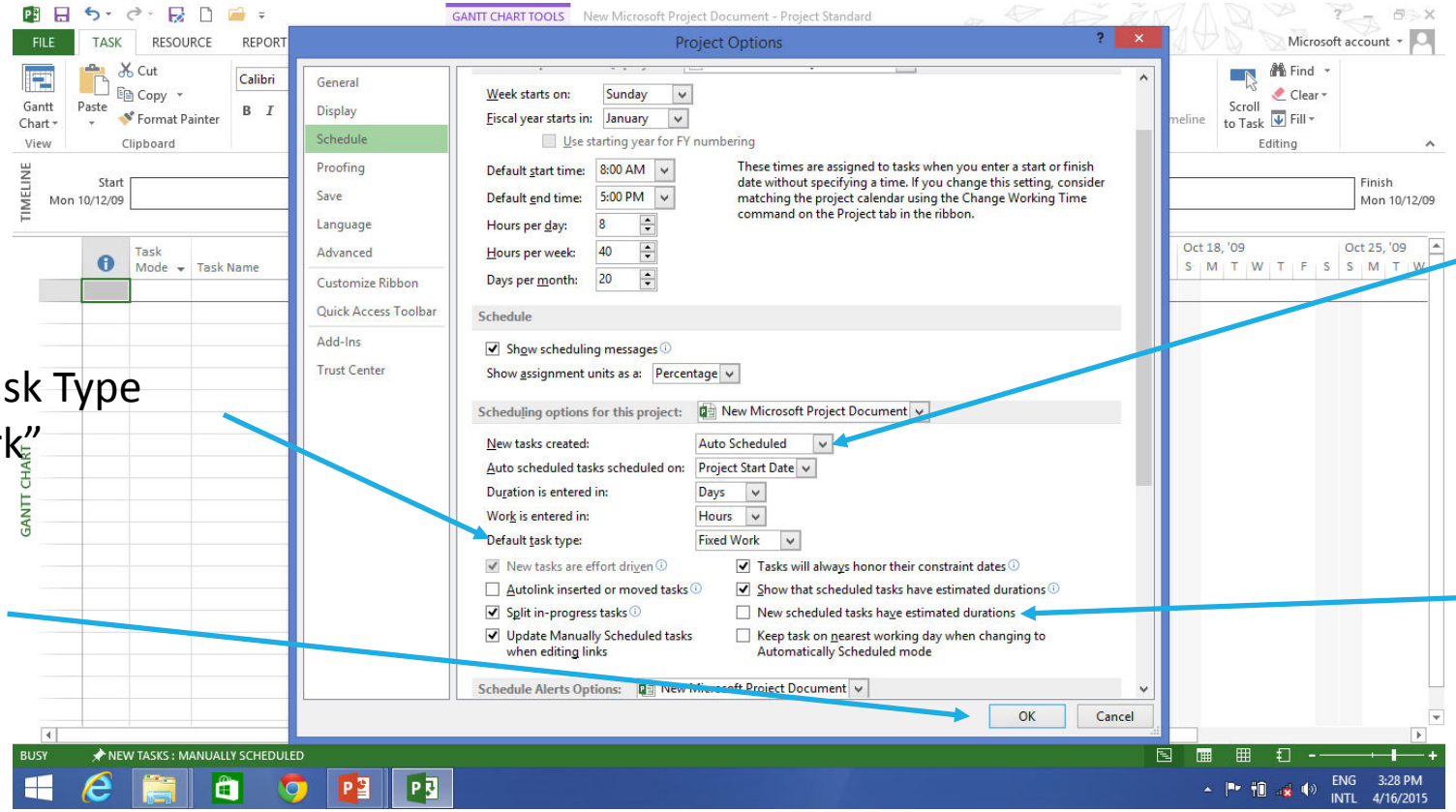
Layout

Open a new Microsoft Project Document



Setup - Options

Go to File -> Options -> Schedule



Set Default Task Type as “Fixed Work”

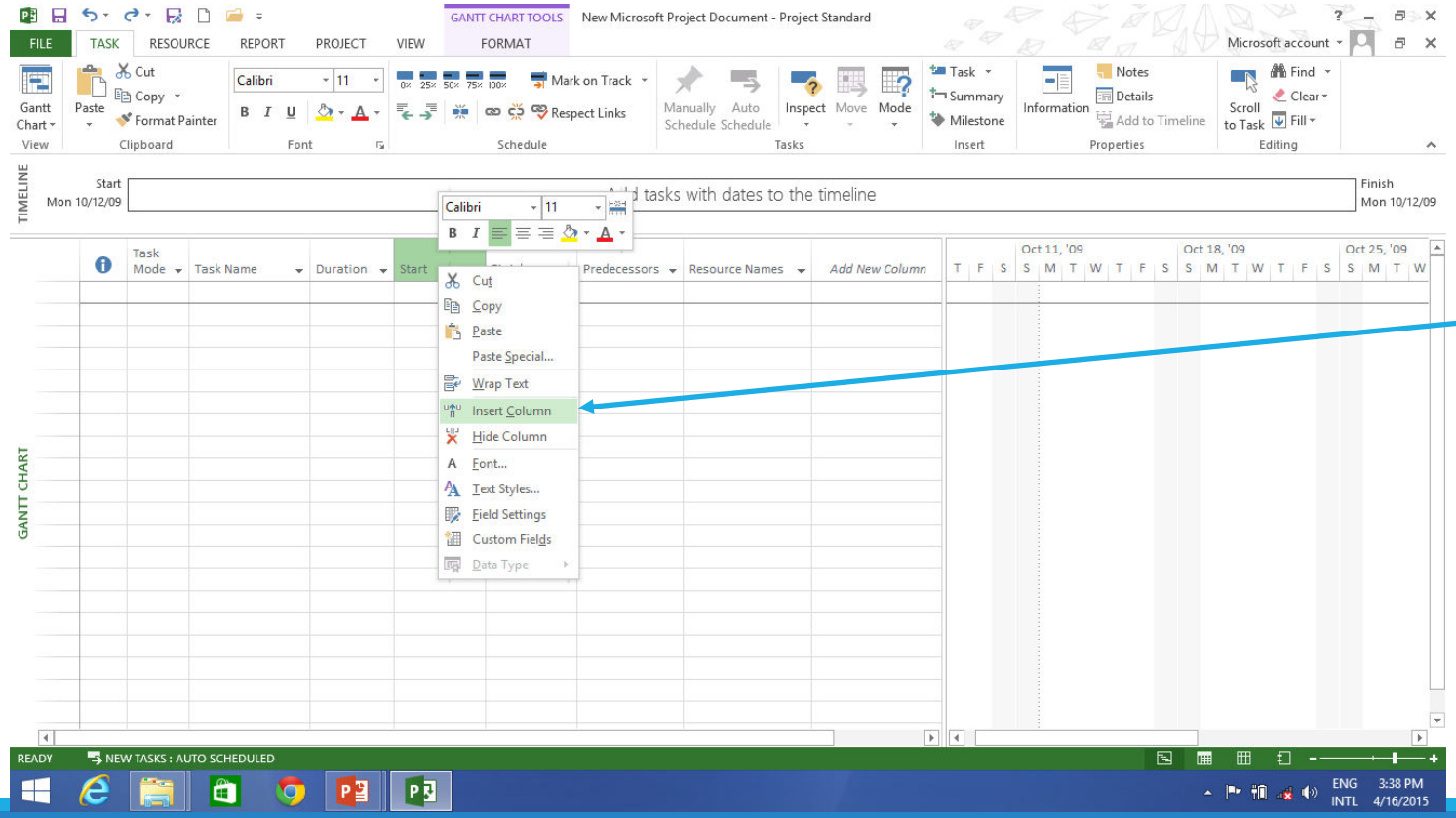
Click on OK

Set “New Tasks Created” as “Auto Scheduled”

Uncheck the check box “New scheduled tasks have estimated durations”

Setup - Work Column

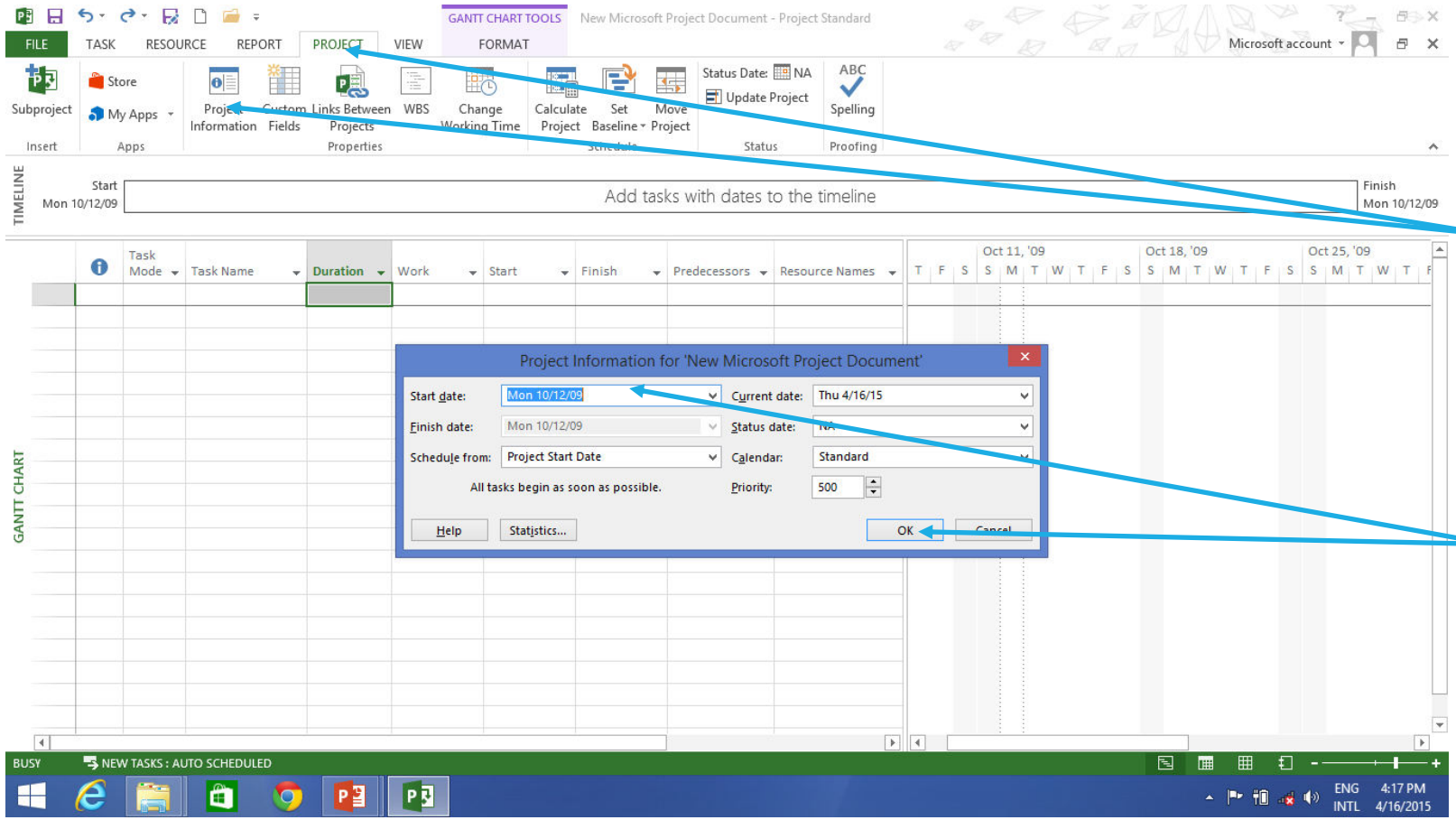
In the Gantt Chart view



Right click on Start column and select Insert Column. Type Work.

Setup - Project Information

In the Gantt Chart view

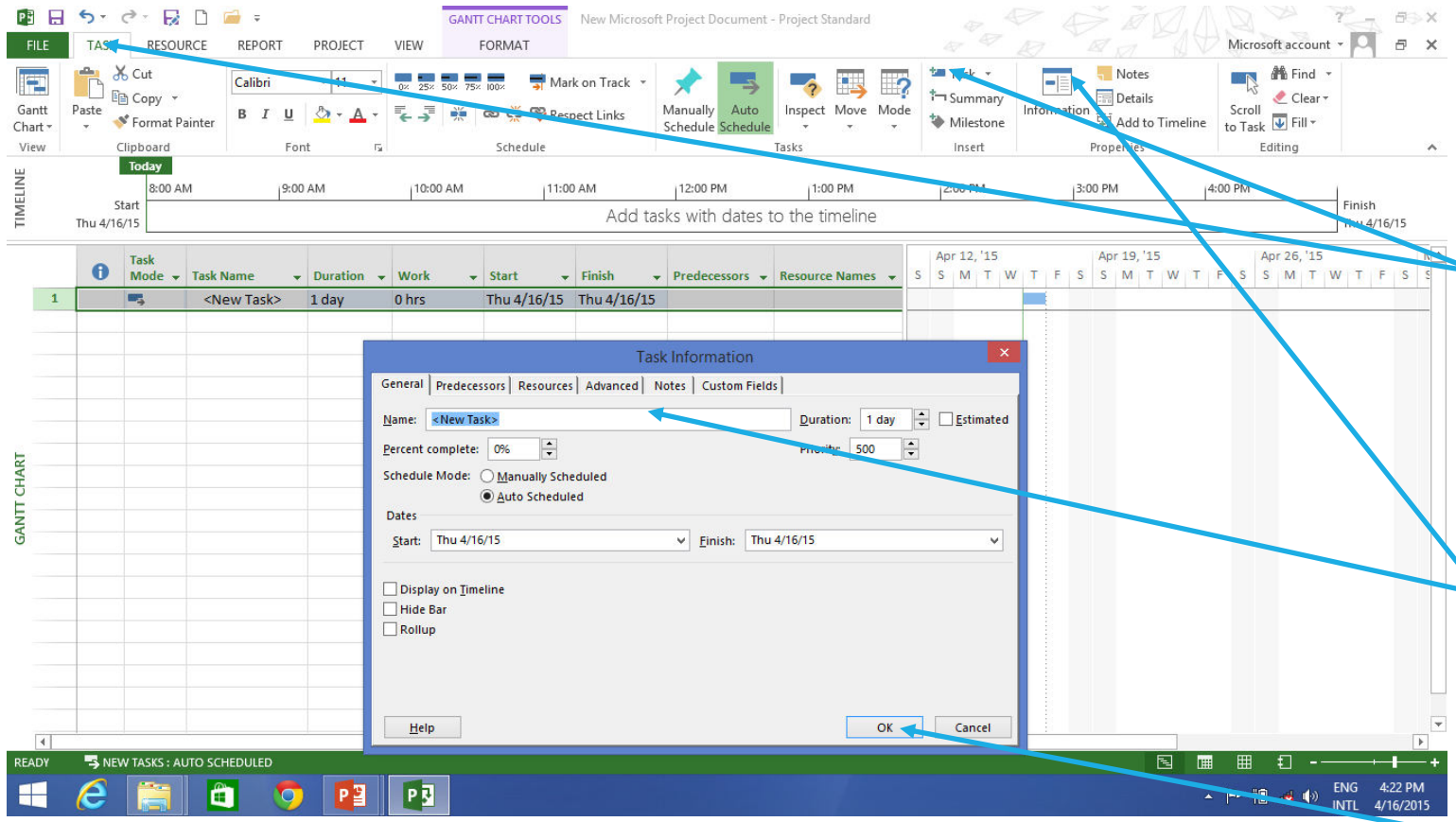


Click on Project Tab
and then Project Information

Set Start Date and click OK

Entering Task

In the Gantt Chart view



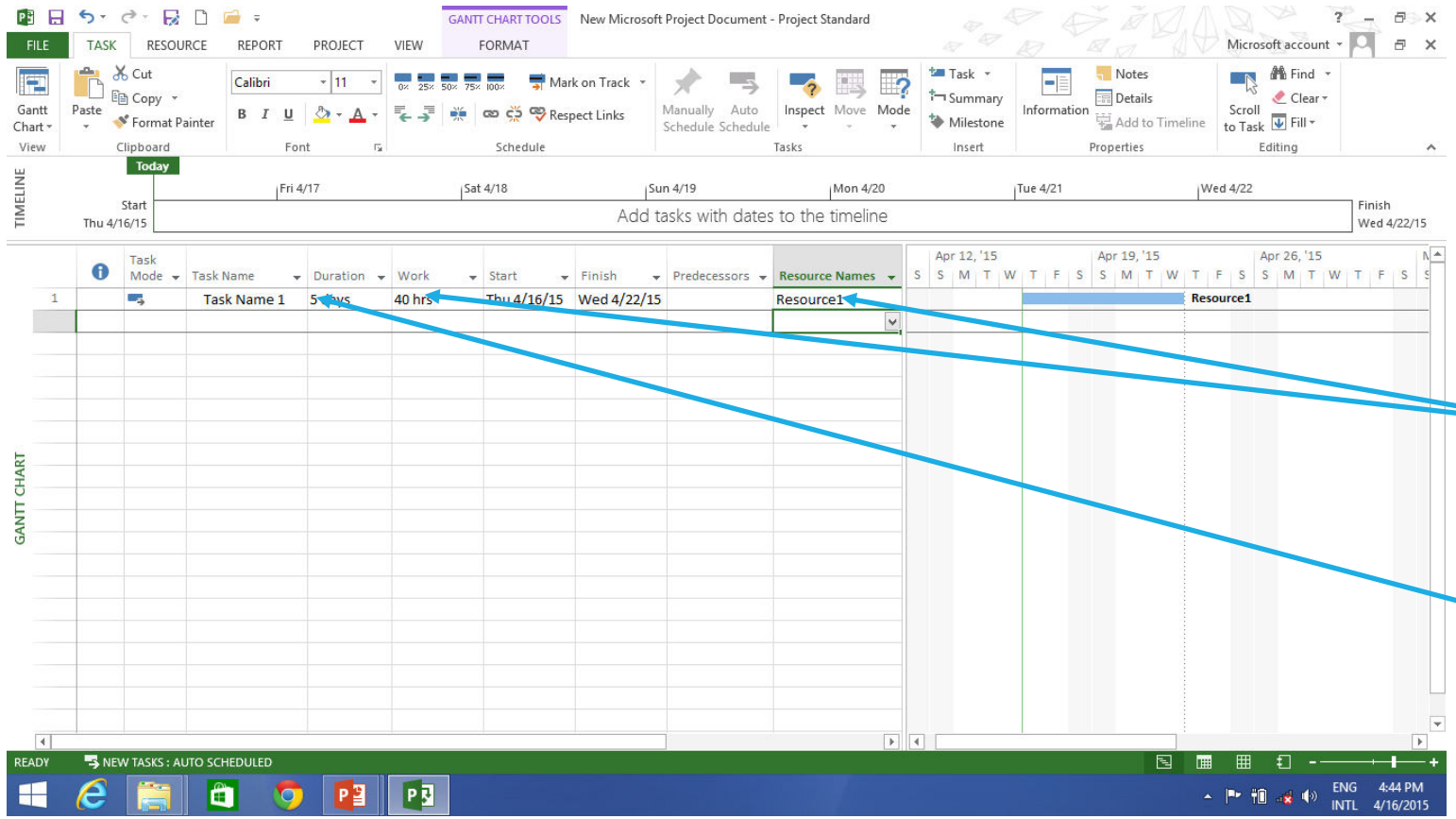
Click on Task Tab
and then Insert Task

Click on Information.
On Task Information window
enter Task Name

Click on OK

Task Duration Calculation

In the Gantt Chart view



Provide Work and Resource Name

Task Duration is calculated

Task Rule

In the Auto Scheduled mode Microsoft Project follows task rule which is defined below :

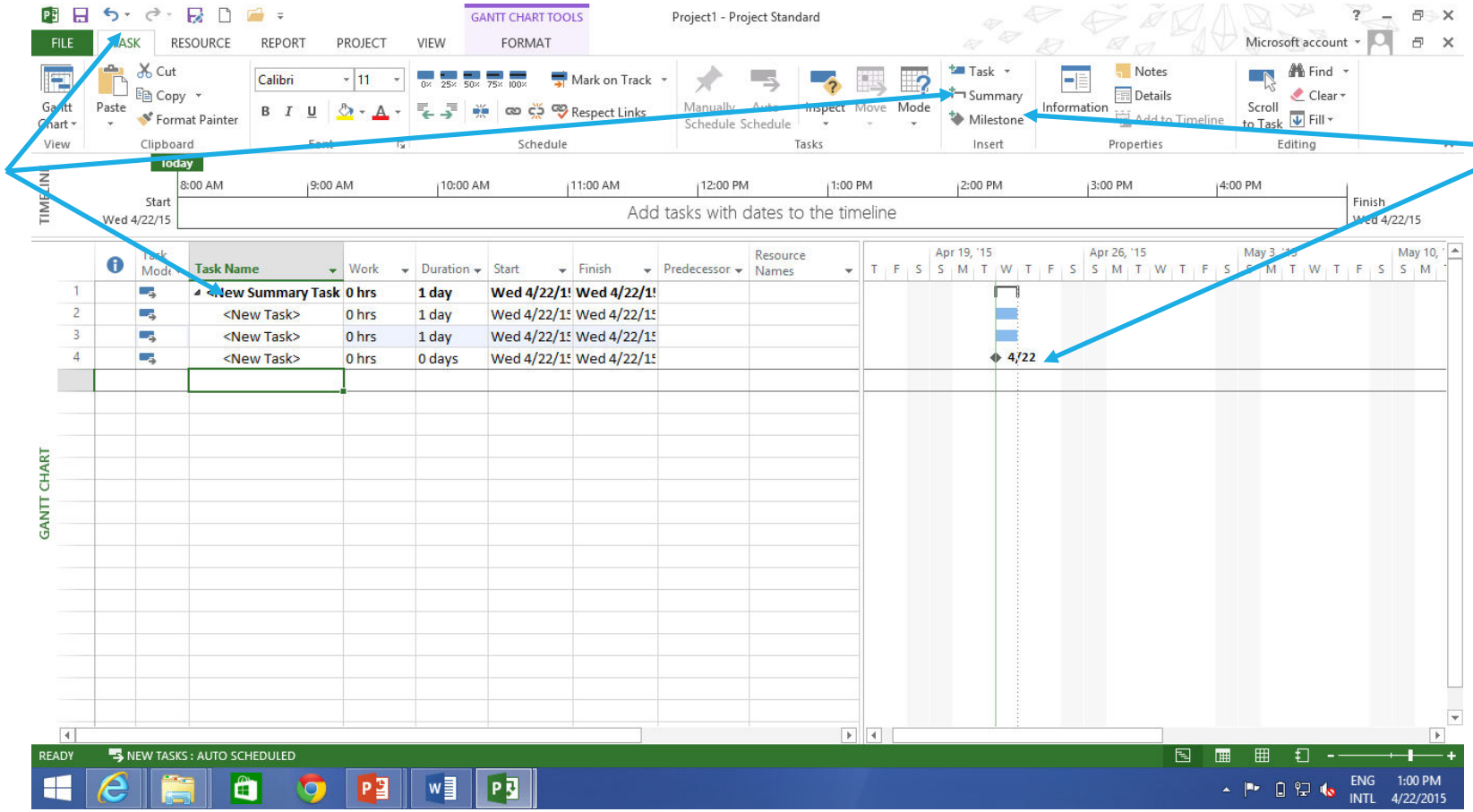
Work = Duration * Resource Units [1 Resource unit = 8 hours]

- When two of the above three variables are provided to the tool, it will calculate the third variable using the task rule.
- If Task Type “Fixed Work” is used the user has to provide Work and Resource details and the tool calculates Duration.
- If Task Type “Fixed Duration” is used the user has to provide Duration and Resource details and the tool calculates Work.
- If Task Type “Fixed Units” is used the user has to provide Resource details and either Work or Duration. The tool calculates the third variable.
- In all the above cases whatever variable is “Fixed” will not be modified by the tool.

Summary Task and Milestone Task

In the Gantt Chart view

Click on Task
And Summary
Summary Task is
created
With sub task



Click on Milestone
Task and Milestone
Is created

Creating Tasks in WBS Format – Exercise

Create a Schedule for the following list of activities:

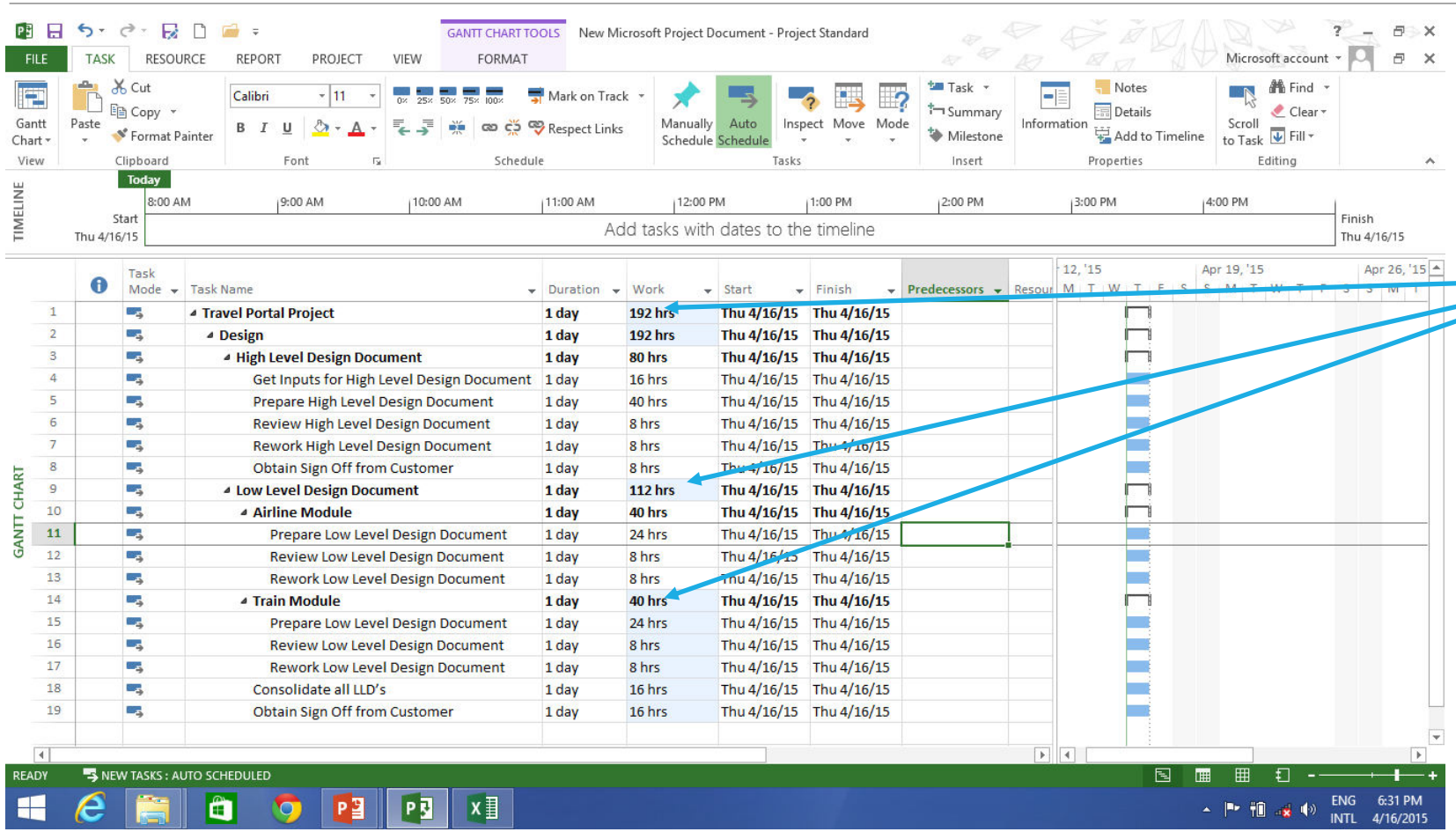
Activity Id indicates WBS Level

Activity ID	Activity Name	Effort [Hrs]
1	Travel Portal Project	
1.2	Design	
1.2.1	High Level Design Document	
1.2.1.1	Get Inputs for High Level Design Document	16
1.2.1.2	Prepare High Level Design Document	40
1.2.1.3	Review High Level Design Document	8
1.2.1.4	Rework High Level Design Document	8
1.2.1.5	Obtain Sign Off from Customer	8
1.2.2	Low Level Design Document	
1.2.2.1	Airline Module	
1.2.2.1.1	Prepare Low Level Design Document	24
1.2.2.1.2	Review Low Level Design Document	8
1.2.2.1.3	Rework Low Level Design Document	8
1.2.2.2	Train Module	
1.2.2.2.1	Prepare Low Level Design Document	24
1.2.2.2.2	Review Low Level Design Document	8
1.2.2.2.3	Rework Low Level Design Document	8
1.2.2.5	Consolidate all LLD's	16
1.2.2.6	Obtain Sign Off from Customer	16

Effort required for only last level of WBS

WBS for Travel Portal Project

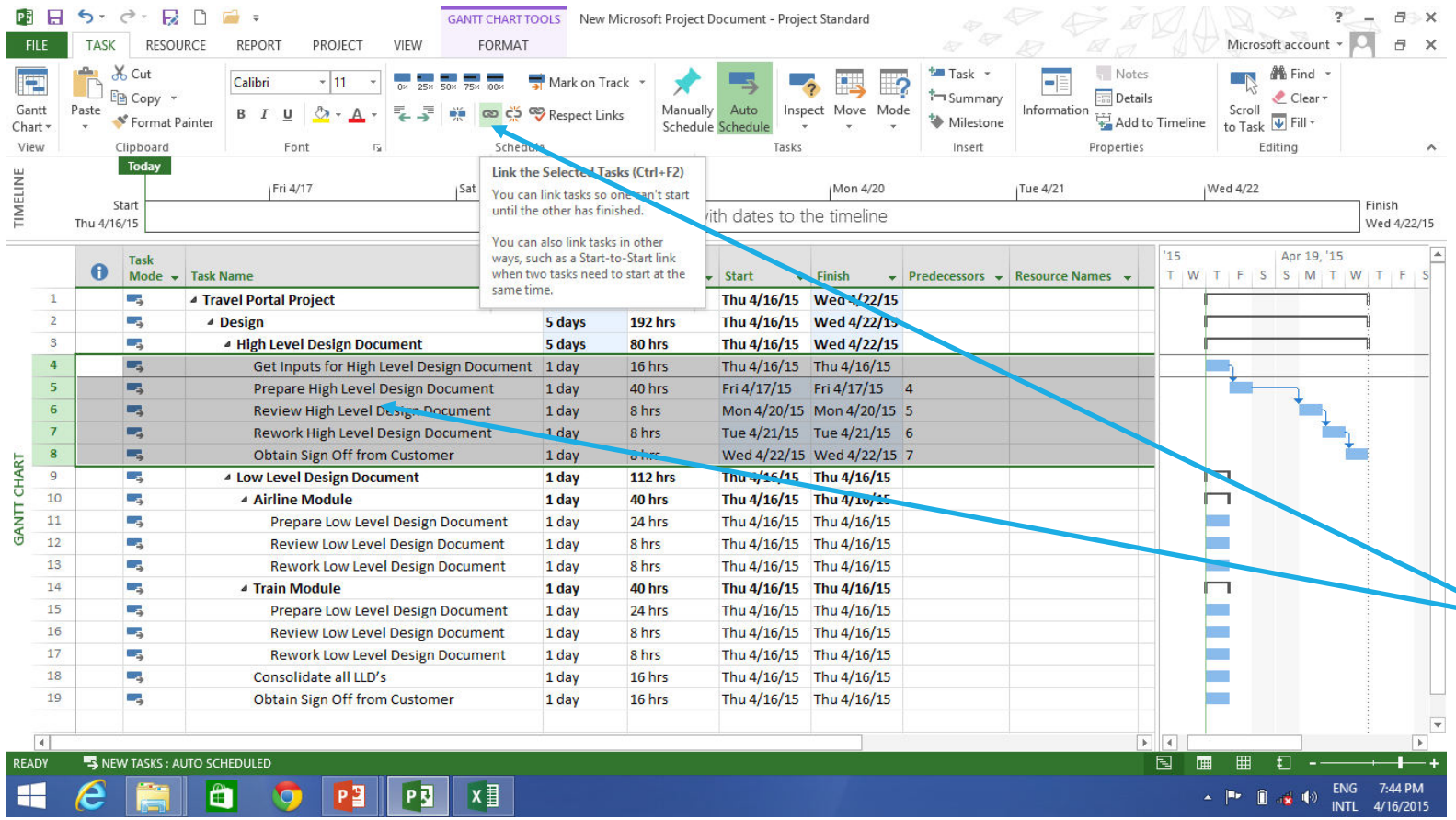
In the Gantt Chart view



Effort Estimate Rolls up to Summary levels

Task Relationships

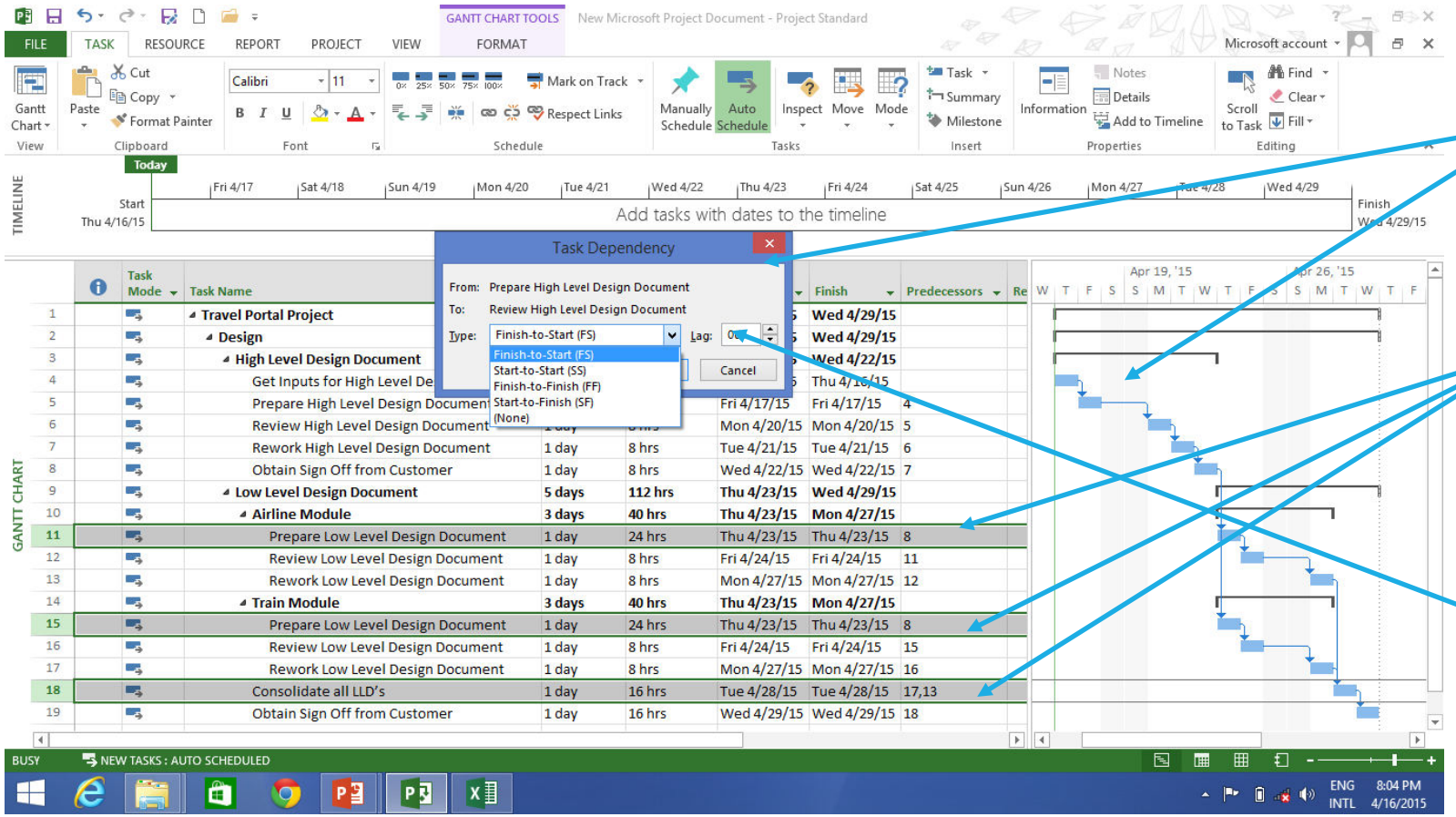
In the Gantt Chart view



Select all the Activities for a Work Package and Link the selected tasks

Task Relationships

In the Gantt Chart view

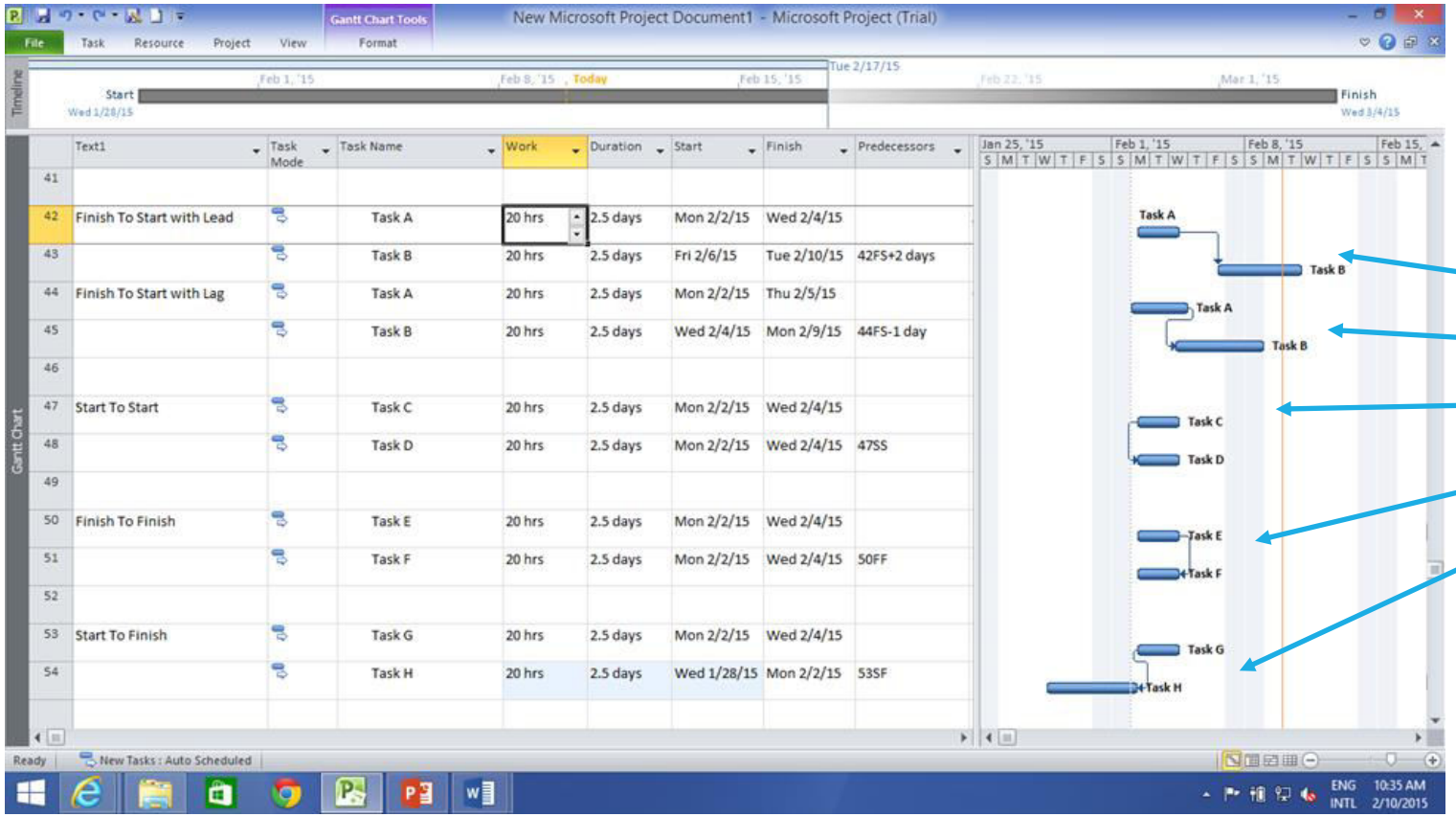


Click on
Task Link
To view
Task Dependency

Setting Parallel
Path

Lag provides
delay between tasks

Types of Task Links

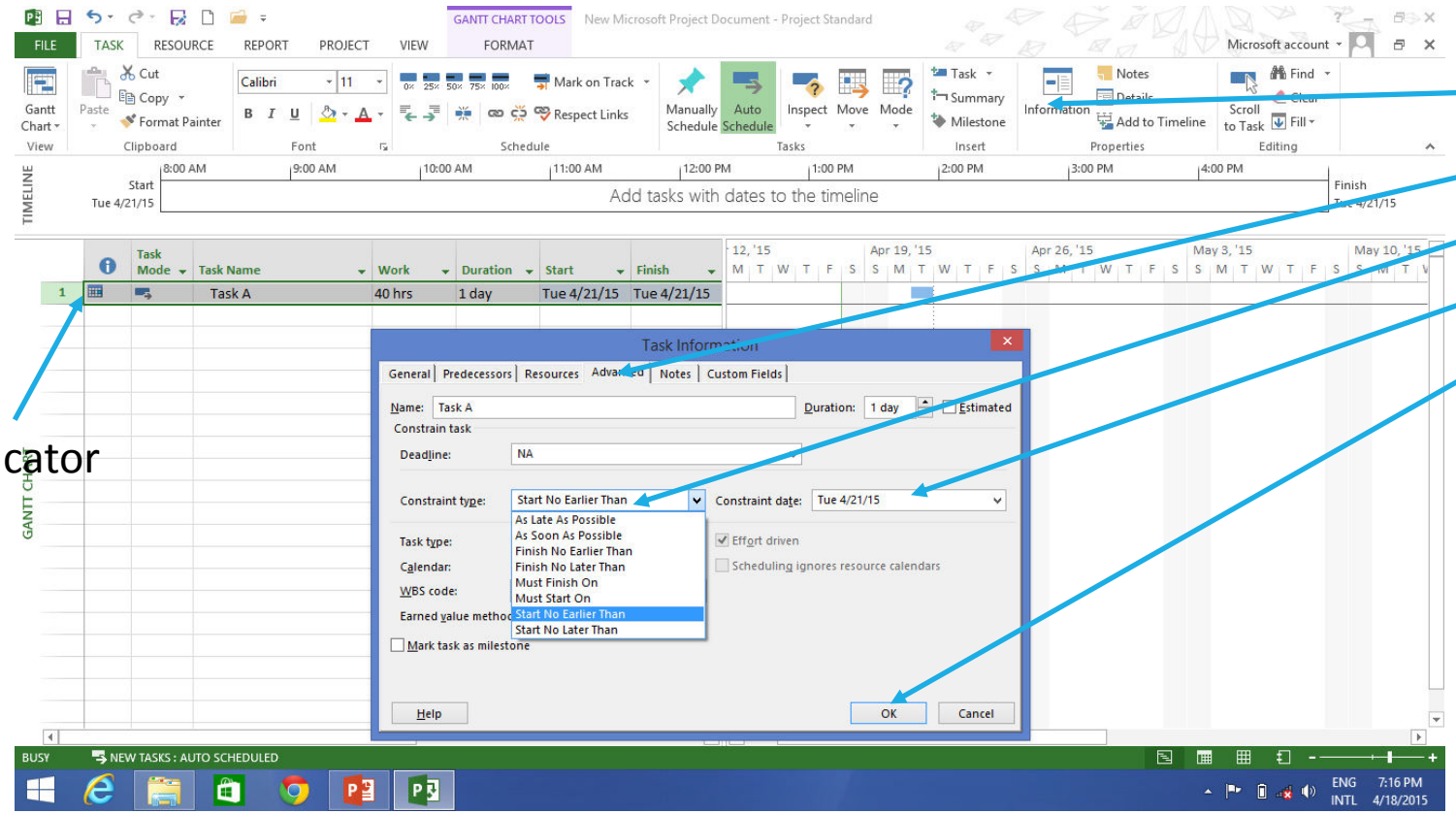


Constraints and Deadlines

- To keep a tighter control on when activities get executed.
- There are 8 constraints in total out of which 2 are flexible.
- The flexible constraints are “As soon as possible” and “As late as possible”. These are default constraints depending on whether forward or backward scheduling was selected under project information.
- The remaining 6 constraints are inflexible and are associated with a calendar date.
- Constraints override predecessor relationships. Even though the task link continue to be shown they are not maintained once constraints are set.
- They are recommended only in case of external dependencies which need to be tracked.
- Deadlines are better recommended for tracking customer drop dead dates.
- Deadlines do not override predecessor relationships.

Setting a Constraint

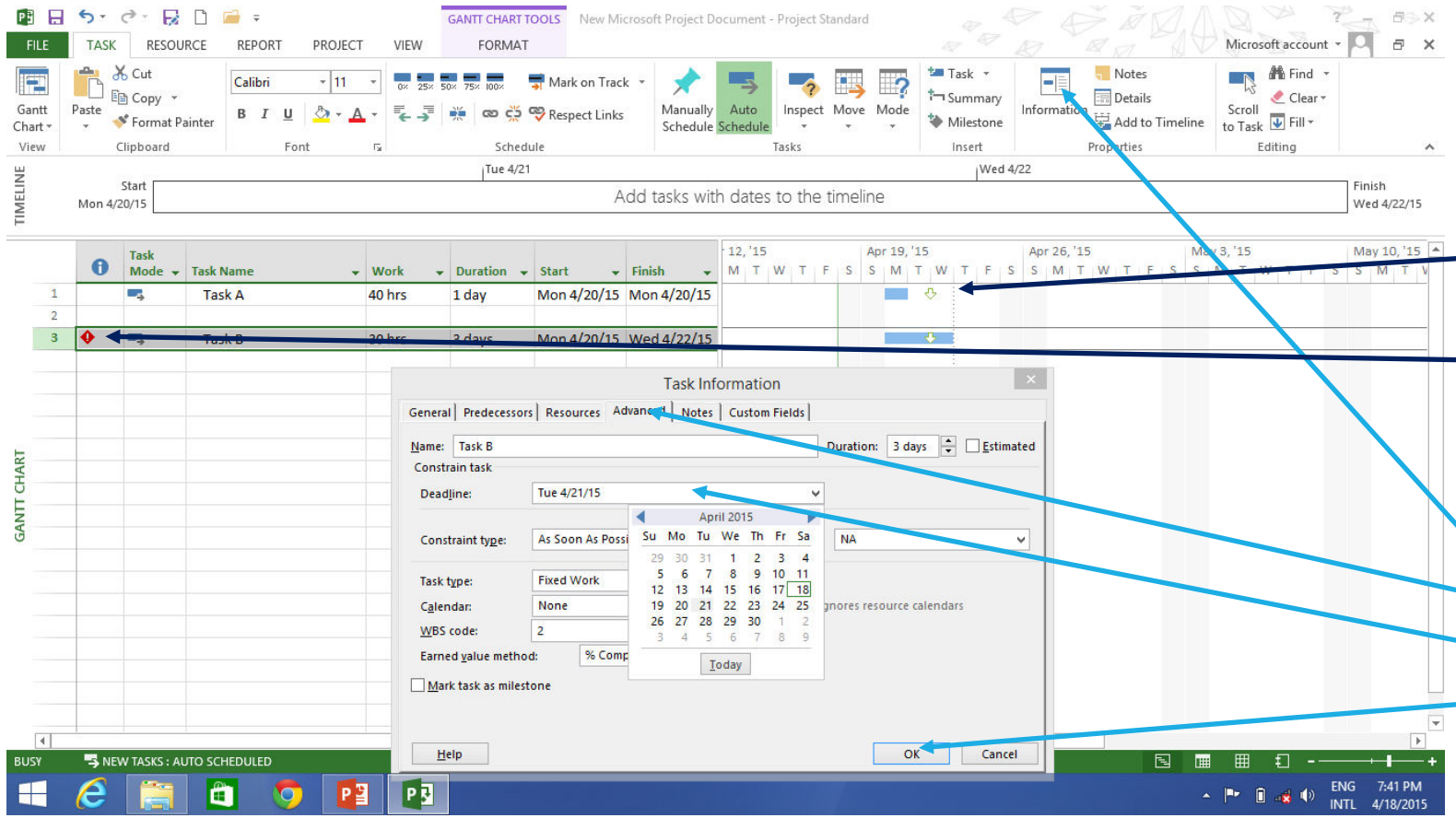
In the Gantt Chart view



- Go to Task Information
- Select Advanced Tab
- Select Constraint type
- Select Constraint date
- Click OK

Setting a Deadline

In the Gantt Chart view



- White arrow indicates Deadline.
- Warning indicator if Deadline is going to be Missed.

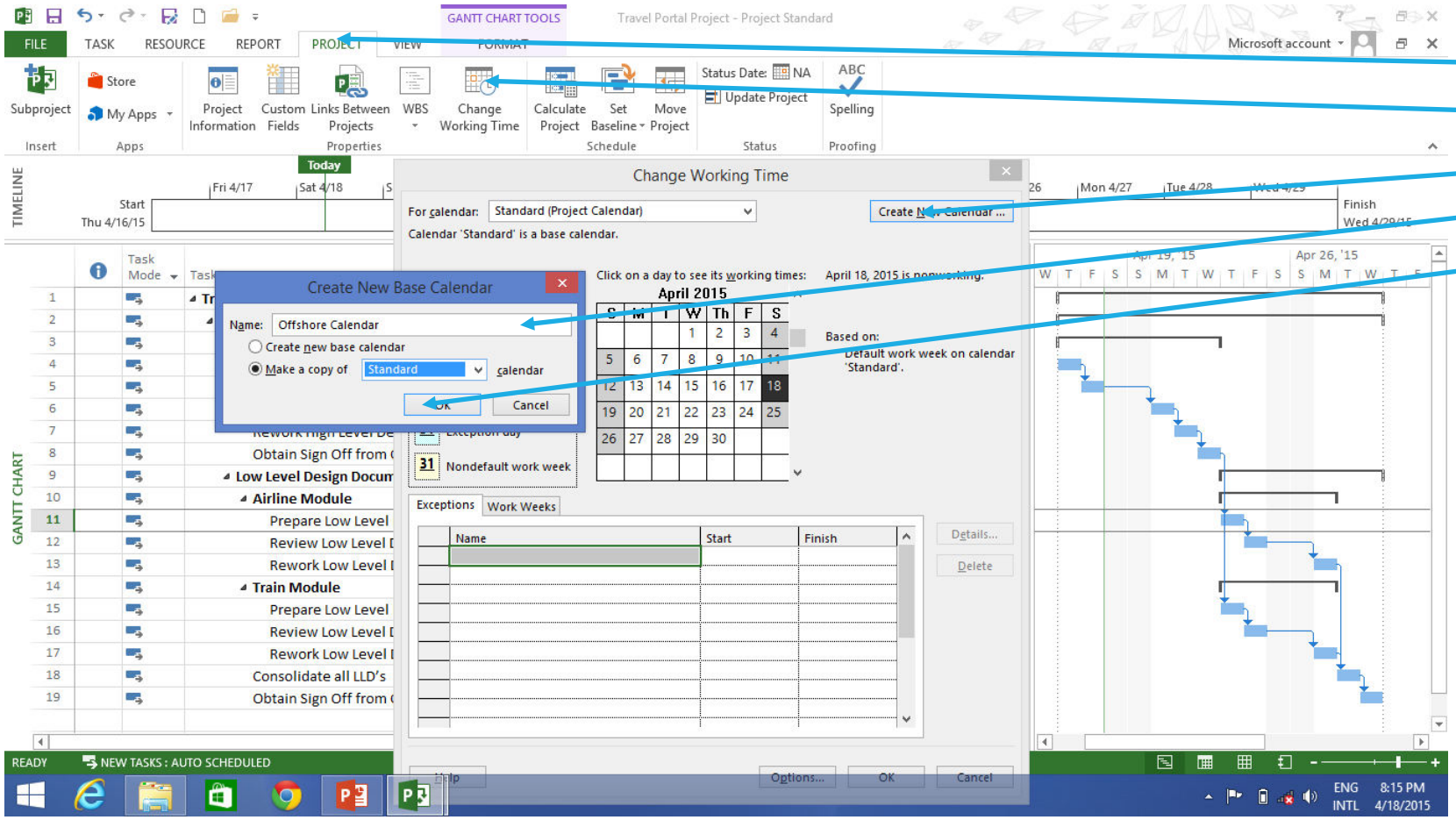
- Go to Task Information
- Select Advanced Tab
- Select Deadline date
- Click OK

Calendars

- There are three calendar templates on Microsoft Project : Standard, Night Shift and 24 hours
- Create a new calendar using one of these
- Change working time for this new calendar by changing default details under work weeks.
- Provide location holiday list under Exceptions
- Set Project Calendar under Project Information
- Assign Resource Calendar to resources under resource sheet
- Track Resource specific leaves under Exception of Resource Calendar
- Assign Task Calendar to tasks under task information
- Create multiple calendars for teams working at different locations

Create a Calendar

In the Gantt Chart view



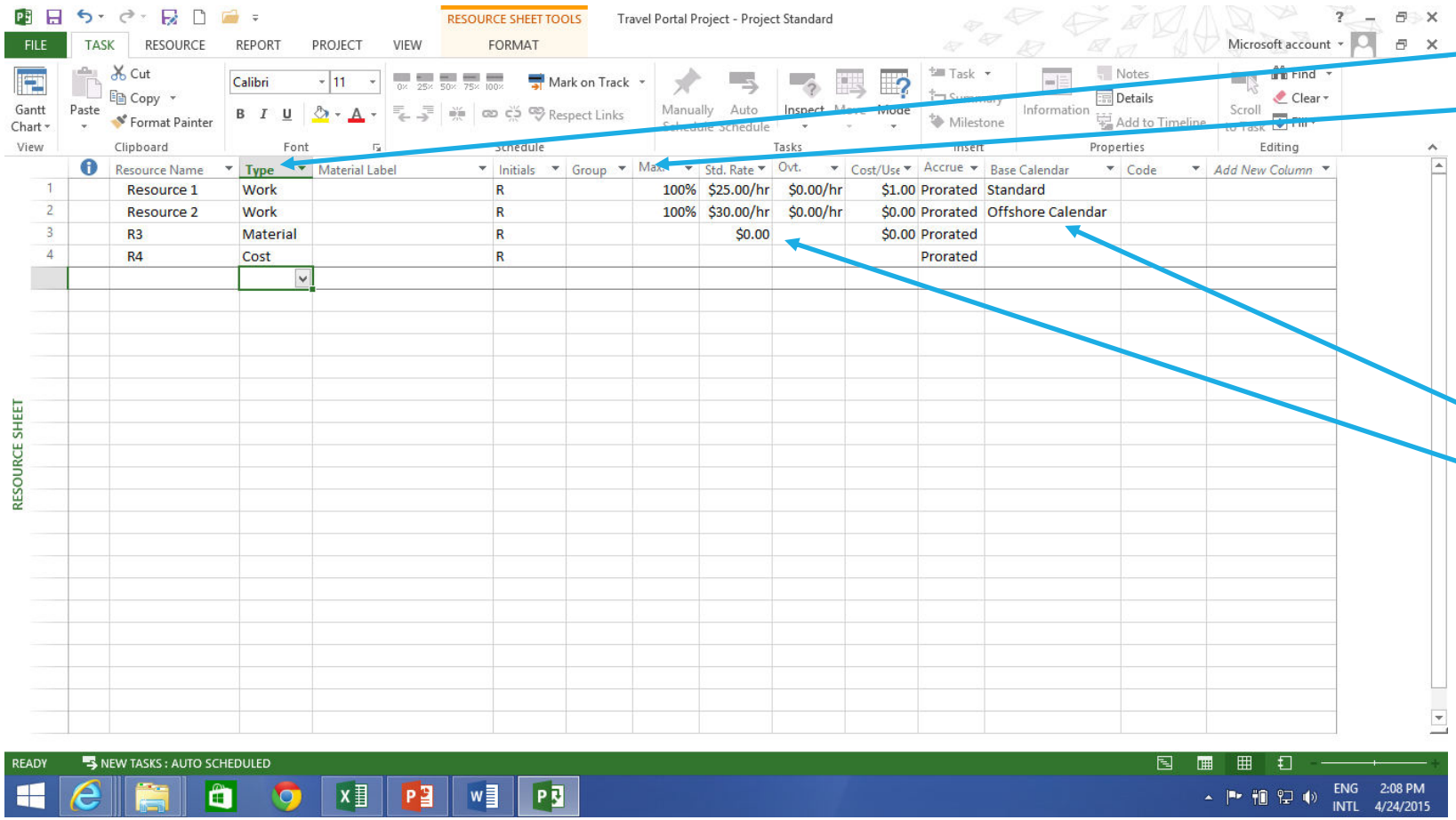
- Go to Project tab
- Change Working Time
- Create New Calendar
- Provide Name
- Click OK

Resources

- Create Resources under Resource sheet
- Resources are of three types :
  - Work – People and equipment
  - Material – Consumables
  - Cost – Associated with an activity
- If a resource is available for less than 100% for this project specify it under Maximum Units.
- Provide Standard Rates, Overtime Rates, Cost per Use
- Under Resource Tab use Assign Resources to assign resources to tasks
- Use Resource Pool to share resources across projects

Resource Sheet

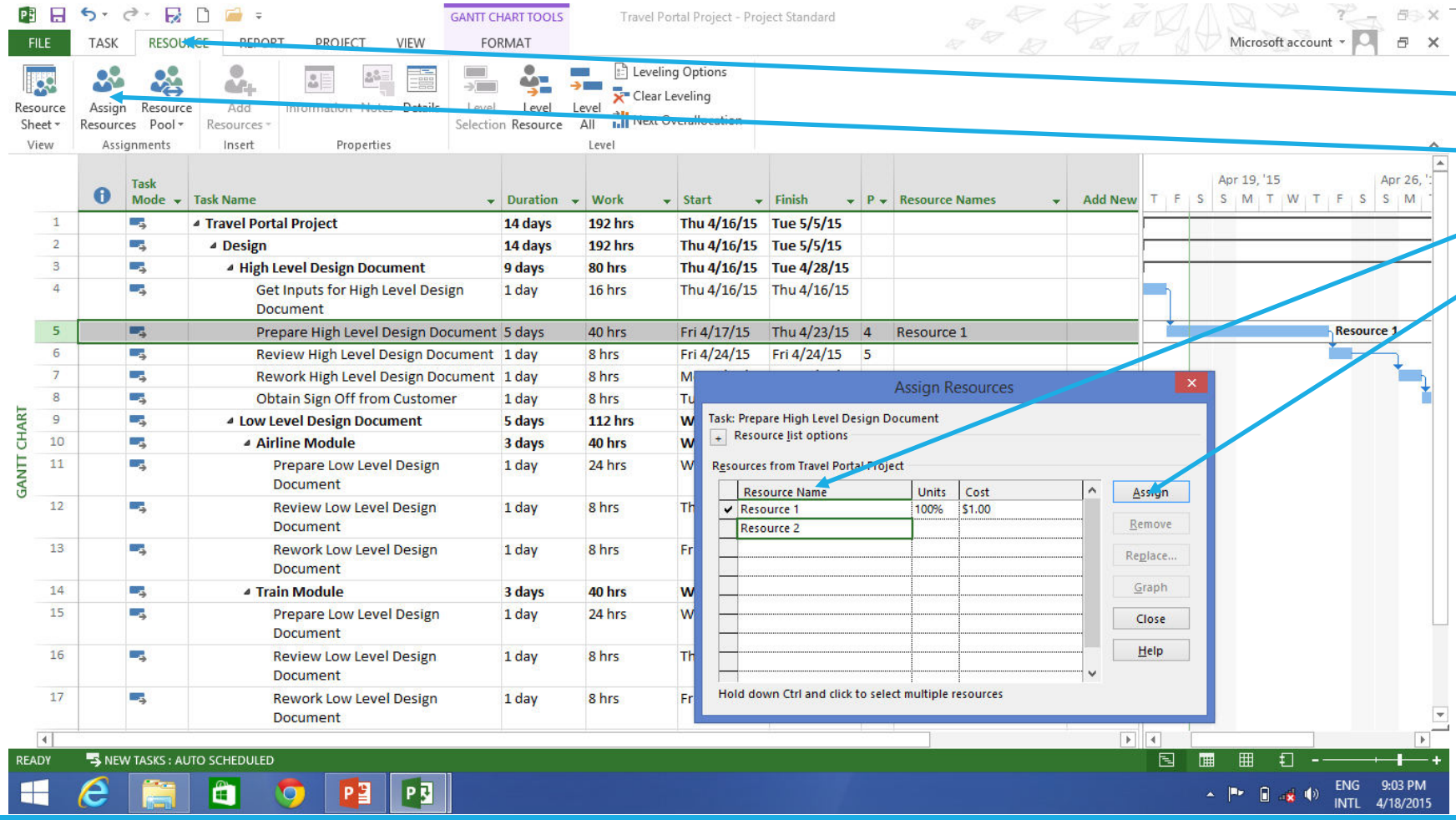
In the Resource Sheet view



- Resource Type
- Resource Availability
- Resource Calendar
- Resource Rates

Assigning Resources

In the Gantt Chart view



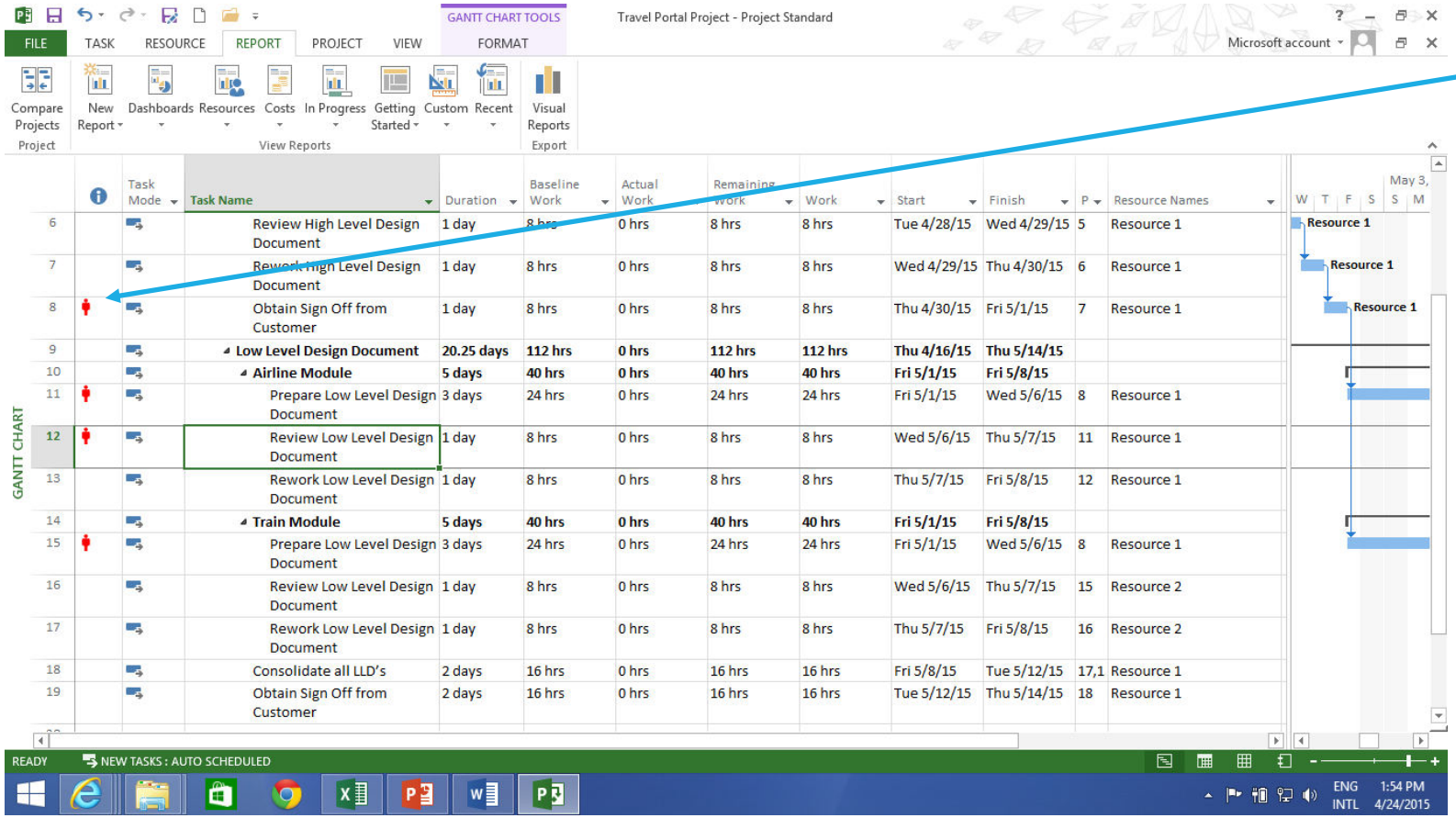
- Go to Resource Tab
- Assign Resources
- Select Resource Name
- Click Assign

Over Allocation of Resources

- Resources who are over allocated will have warning indicator
- Details of over allocation can be seen from Resource sheet, Resource Usage and Resource Graph.
- To resolve over allocation Resource Levelling technique is used
- The Resource Levelling options are:
  - Automatic – Once set the tool ensures no Resource is over allocated. But there can be many under allocations resulting in project date getting extended.
  - Manual –
    i. Here tool looks for over allocation on minute or hourly or daily or weekly or monthly basis.
    ii. Entire Project or only a set of activities can be levelled.
    iii. Levelling order can be specified.
    iv. Actions the tool can/cannot take can be specified.
    v. Level for selected Resources or Tasks.

Over Allocation

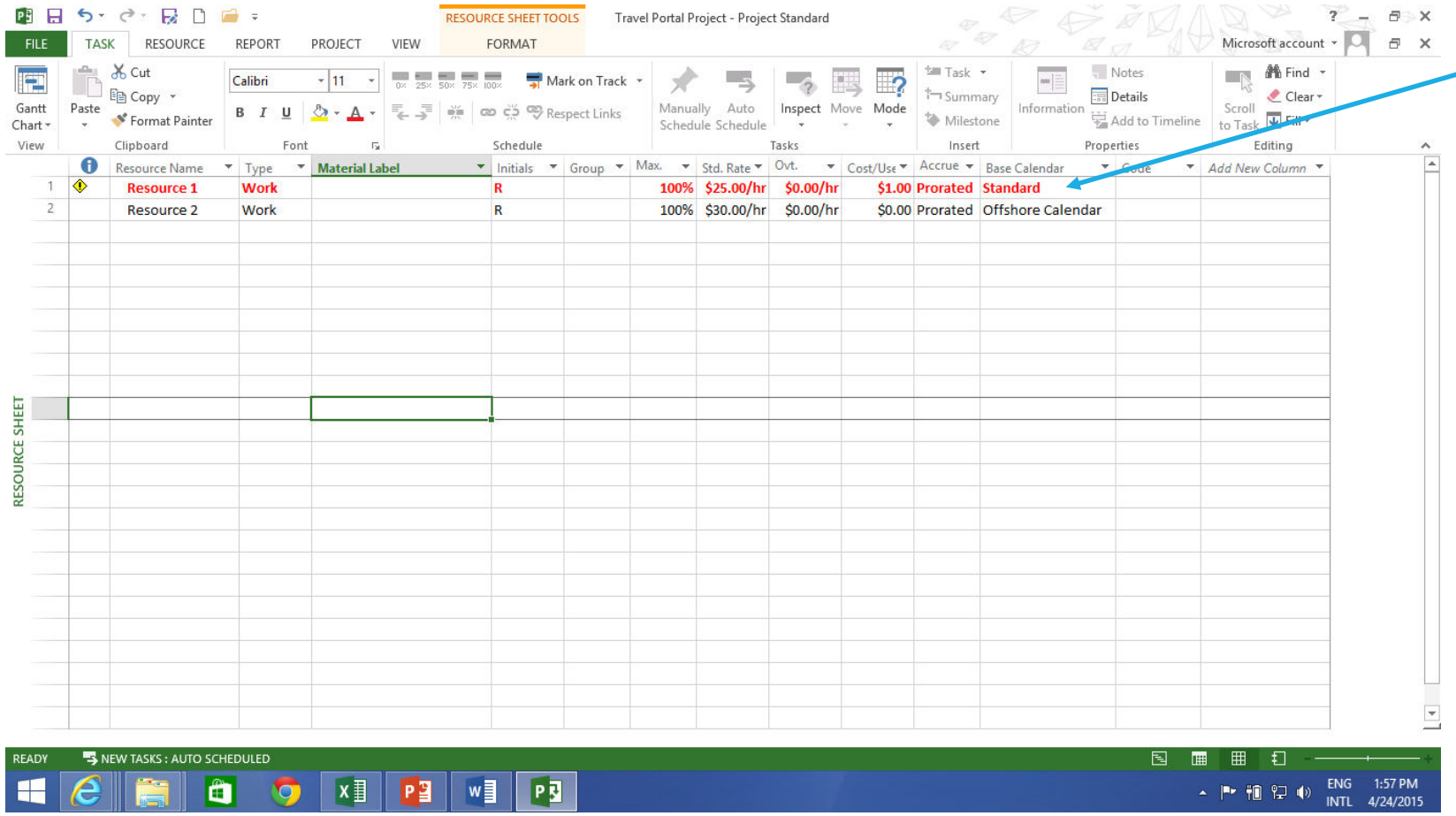
In the Gantt Sheet view



- Over Allocation highlighted in Indicator column

Over Allocation

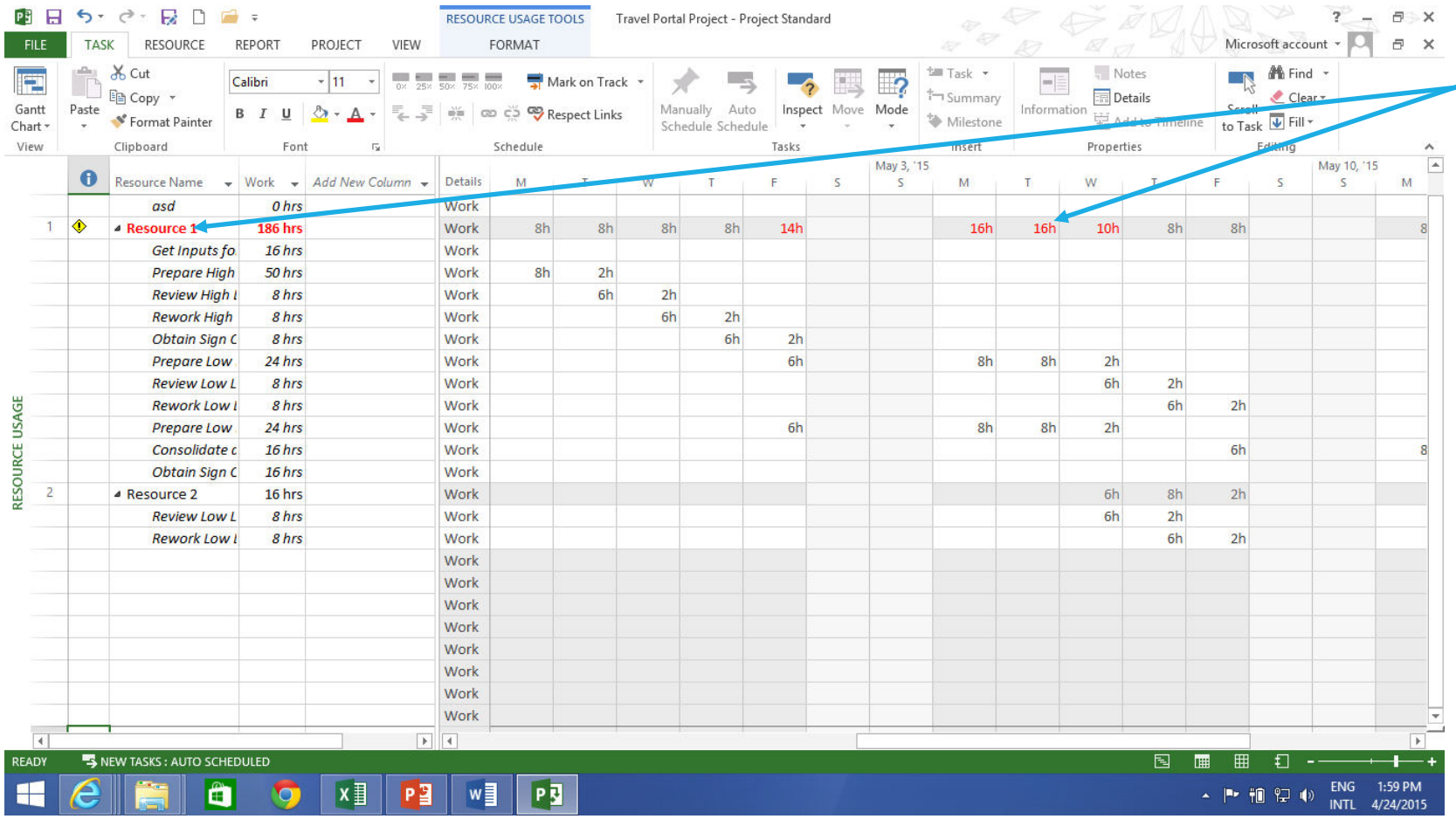
In the Resource Sheet view



- Over Allocated Resource rows highlighted in red

Over Allocation

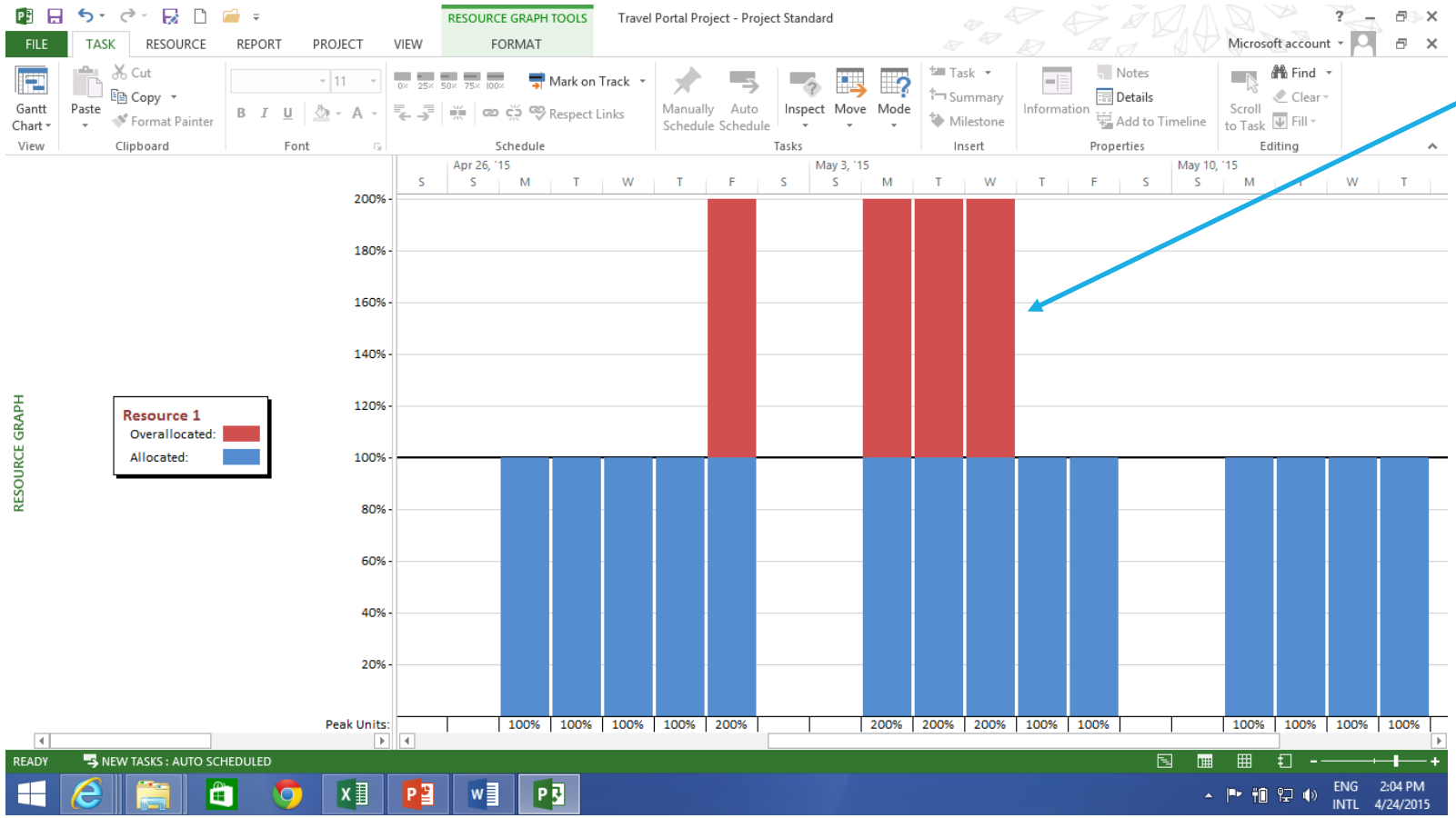
In the Resource Usage view



Over Allocated Resources and days of over allocation highlighted in red

Over Allocation

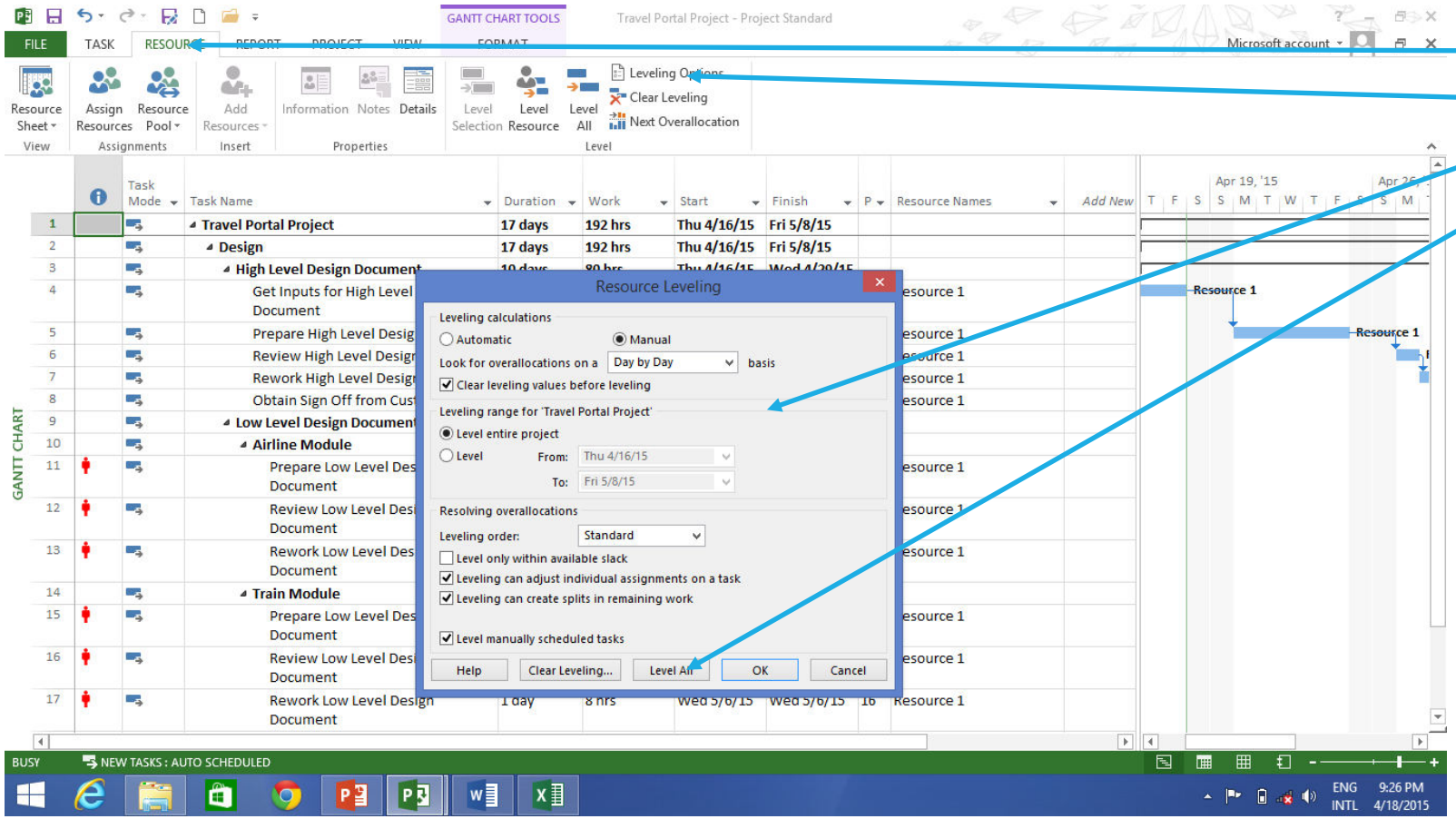
In the Resource Graph view



- Over Allocation days highlighted with Percentage allocation

Resource Levelling

In the Gantt Chart view



- Go to Resource Tab
- Levelling Options
- Set Levelling calculations
- Click Level All

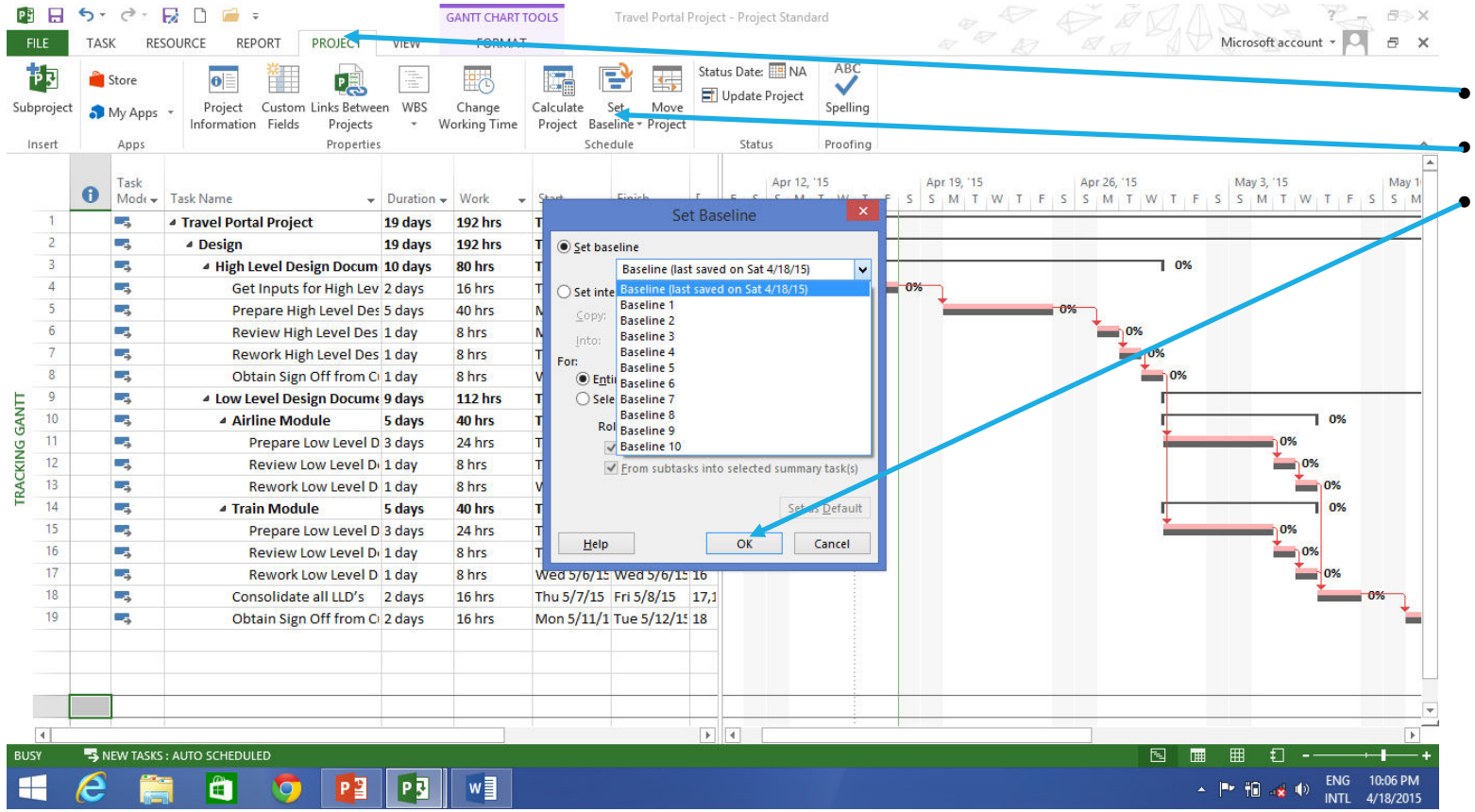
Guidelines for Resource Levelling

- When checking for over allocation look for over allocation on a day by day basis or week by week basis only.
- If a resource is over allocated on a particular day by one or two hours only you can take a judgment call whether you want to try to reduce that over allocation or leave it.
- If a resource is over allocated for few days of the week but is within the expected hours for that week you may again want to take a judgment call whether you want to try to reduce those over allocations or leave them.
- When choosing Levelling order choose either Standard or Priority and not ID only.
- Leveling within available slack has the advantage of not changing your project end date.
- Refer to the attached document for more information on above levelling orders.

Levelling Orders

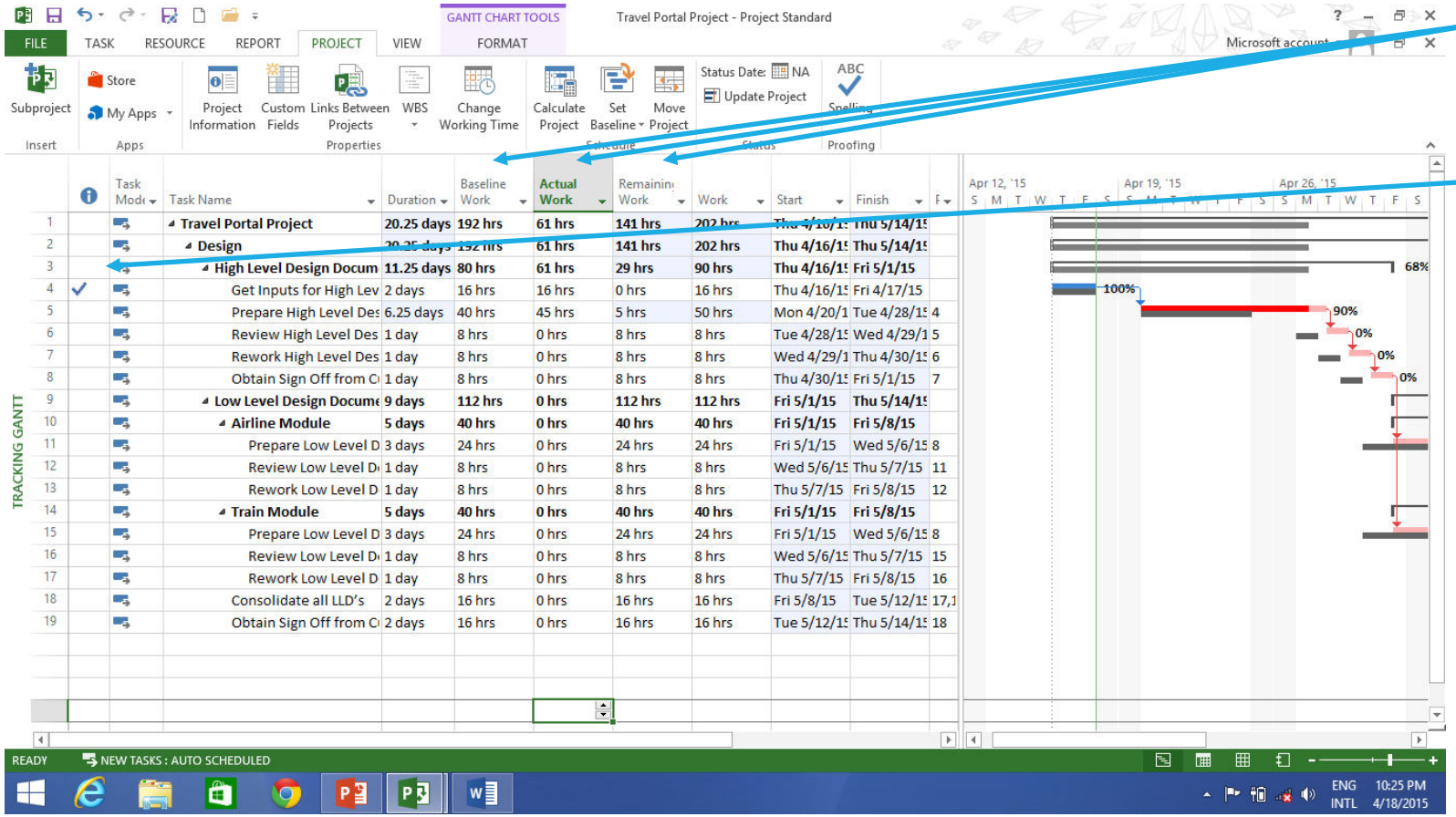
Baseline

In the Gantt Chart view



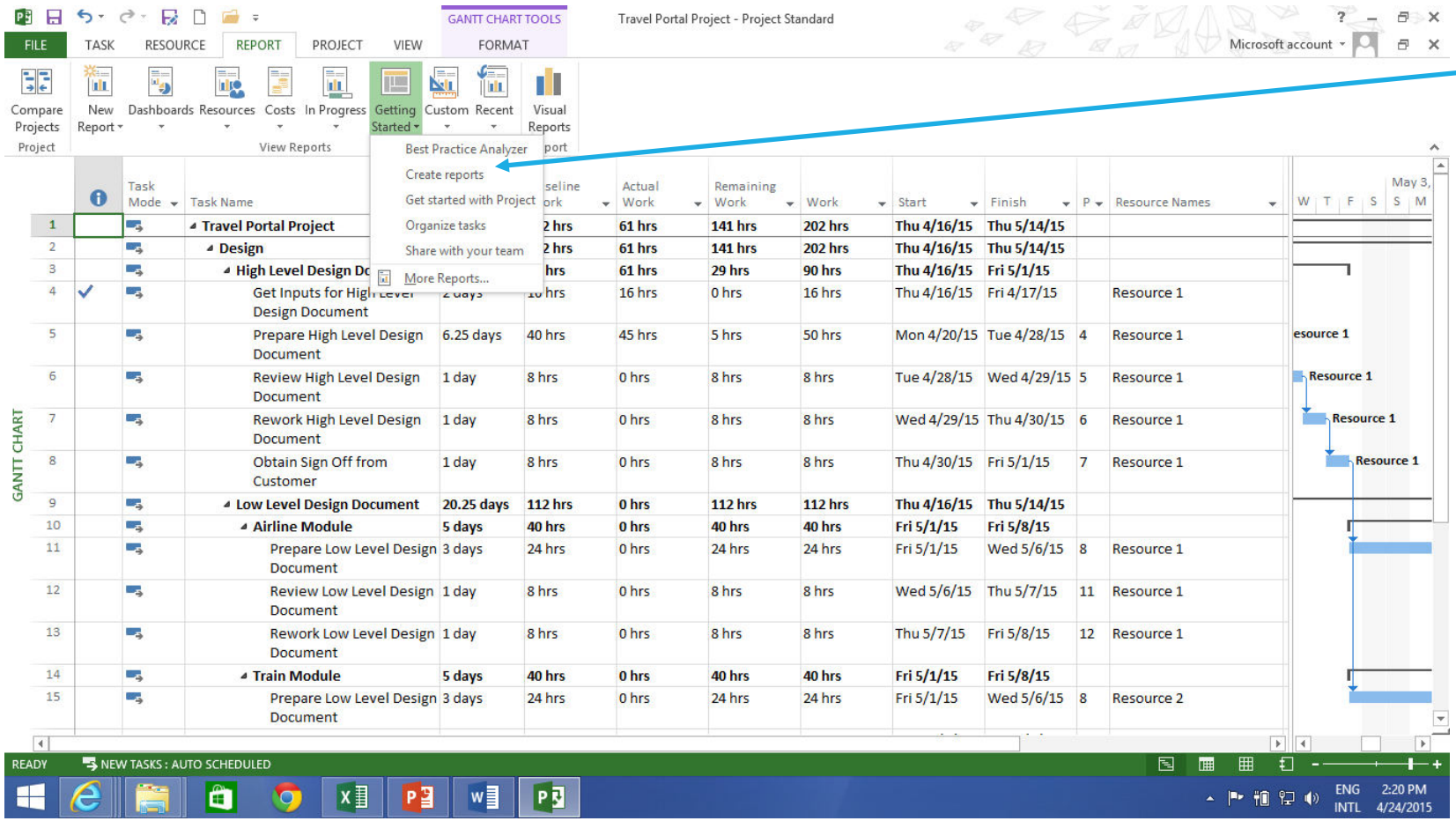
- Go to Project Tab
- Set Baseline
- Click OK

Tracking



- Insert Columns Baseline Work, Actual Work, Remaining Work
- Completed tasks will be Reflected in the indicator column

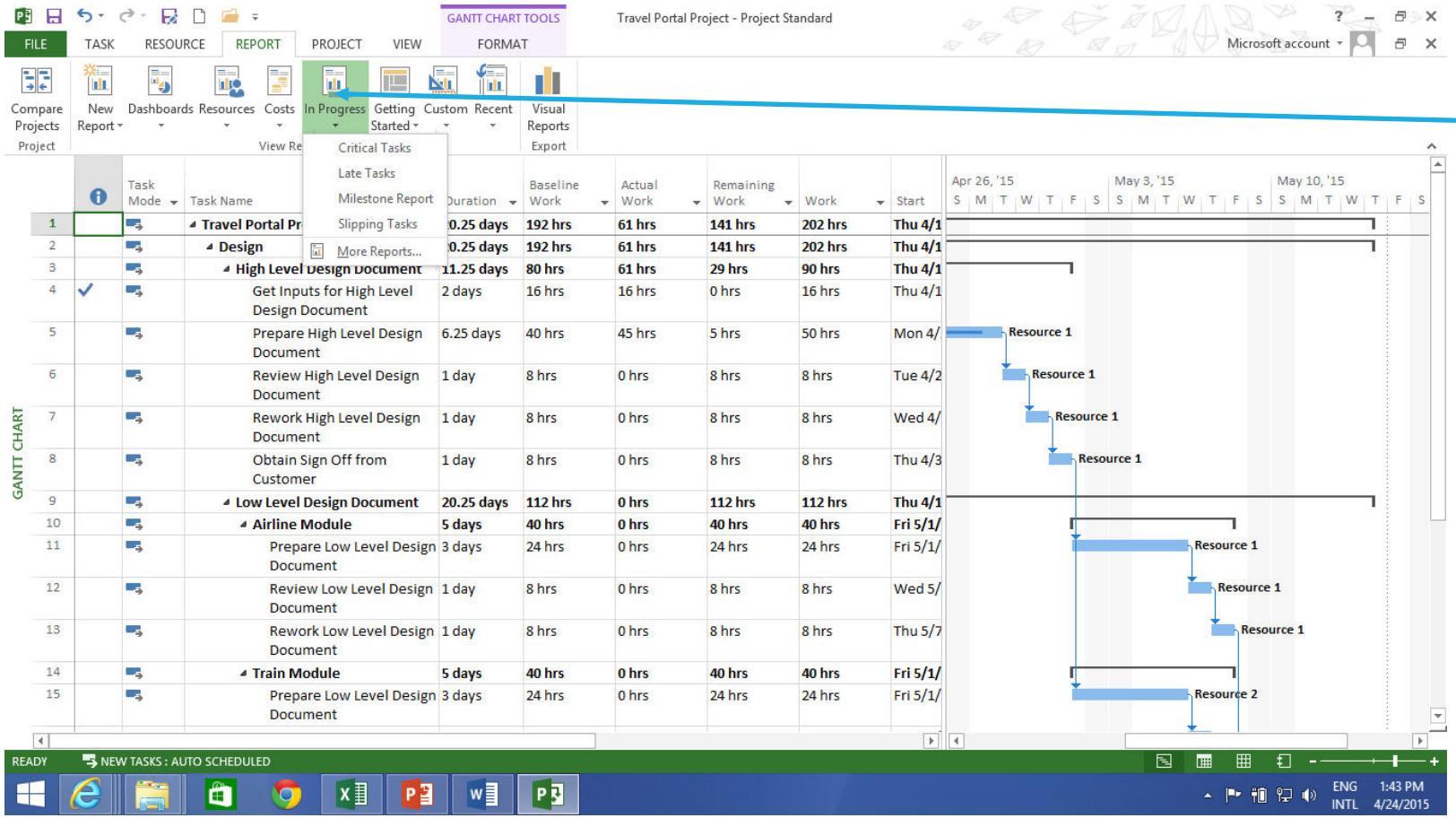
Report



	Task Mode	Task Name	Duration	Baseline Work	Actual Work	Remaining Work	Work	Start	Finish	P	Resource Names
1		**Travel Portal Project**		**2 hrs**	**61 hrs**	**141 hrs**	**202 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
2		**Design**		**2 hrs**	**61 hrs**	**141 hrs**	**202 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
3		**High Level Design Do**		**hrs**	**61 hrs**	**29 hrs**	**90 hrs**	**Thu 4/16/15**	**Fri 5/1/15**		
4	✓	Get Inputs for High Level Design Document	2 days	16 hrs	16 hrs	0 hrs	16 hrs	Thu 4/16/15	Fri 4/17/15		Resource 1
5		Prepare High Level Design Document	6.25 days	40 hrs	45 hrs	5 hrs	50 hrs	Mon 4/20/15	Tue 4/28/15	4	Resource 1
6		Review High Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Tue 4/28/15	Wed 4/29/15	5	Resource 1
7		Rework High Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Wed 4/29/15	Thu 4/30/15	6	Resource 1
8		Obtain Sign Off from Customer	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Thu 4/30/15	Fri 5/1/15	7	Resource 1
9		**Low Level Design Document**	**20.25 days**	**112 hrs**	**0 hrs**	**112 hrs**	**112 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
10		**Airline Module**	**5 days**	**40 hrs**	**0 hrs**	**40 hrs**	**40 hrs**	**Fri 5/1/15**	**Fri 5/8/15**		
11		Prepare Low Level Design Document	3 days	24 hrs	0 hrs	24 hrs	24 hrs	Fri 5/1/15	Wed 5/6/15	8	Resource 1
12		Review Low Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Wed 5/6/15	Thu 5/7/15	11	Resource 1
13		Rework Low Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Thu 5/7/15	Fri 5/8/15	12	Resource 1
14		**Train Module**	**5 days**	**40 hrs**	**0 hrs**	**40 hrs**	**40 hrs**	**Fri 5/1/15**	**Fri 5/8/15**		
15		Prepare Low Level Design Document	3 days	24 hrs	0 hrs	24 hrs	24 hrs	Fri 5/1/15	Wed 5/6/15	8	Resource 2

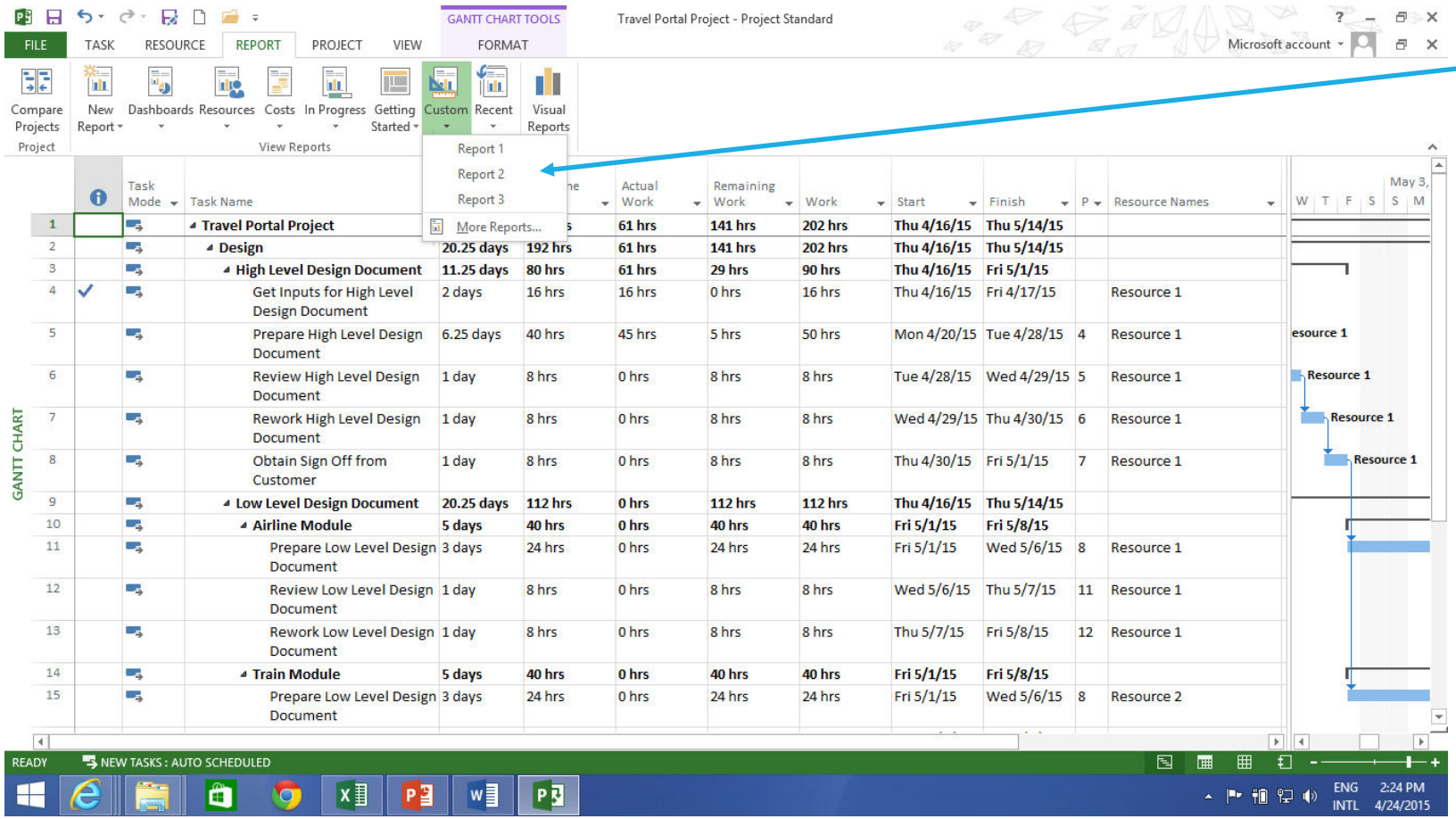
- Go to Report Tab and Select Getting Started to get overview of Report features

Report



- Go to Report Tab and Select Dashboards, Resources, Costs or In Progress for predefined Reports

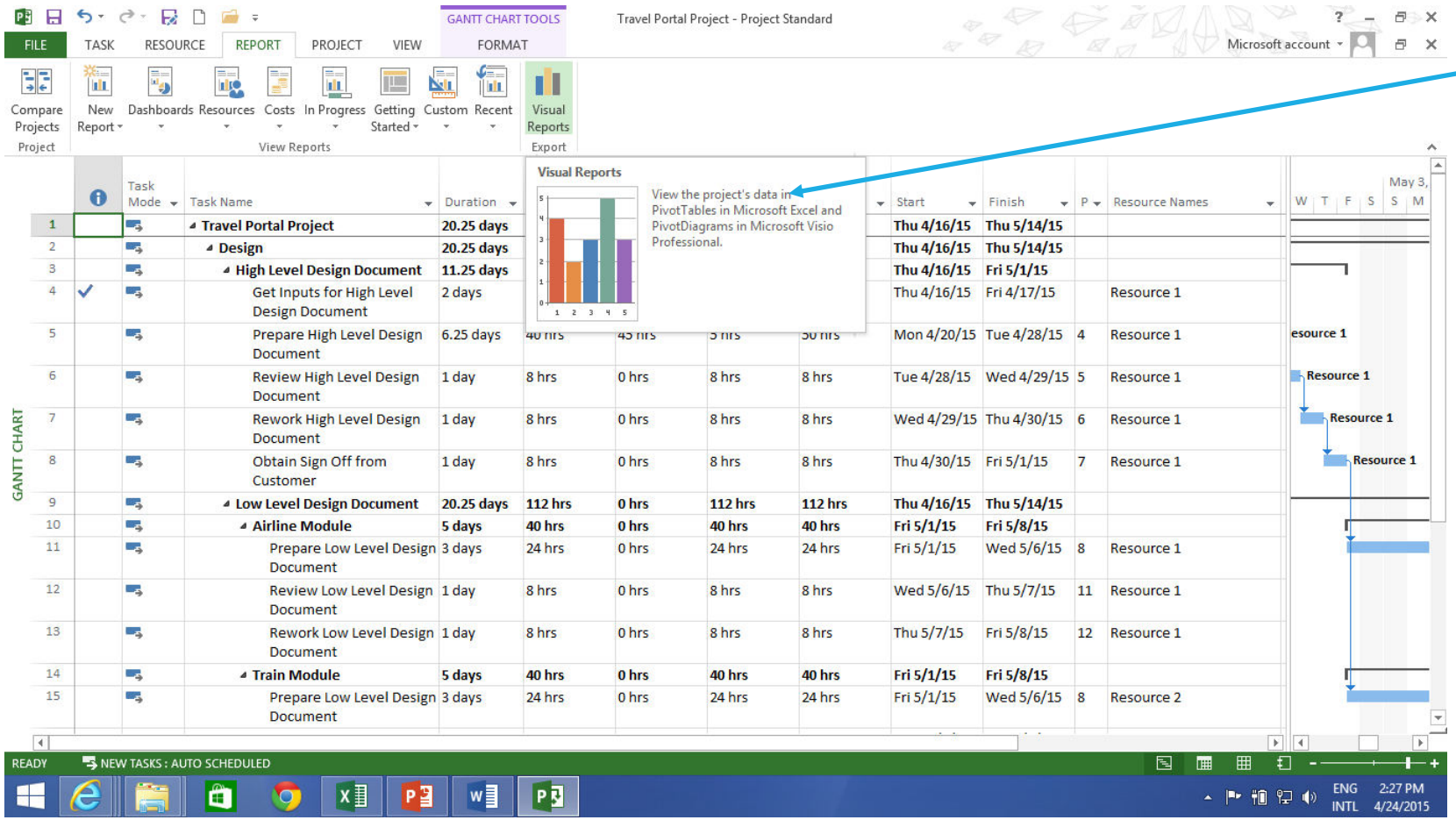
Report



	Task Mode	Task Name	Duration	Work	Actual Work	Remaining Work	Work	Start	Finish	P	Resource Names
1		**Travel Portal Project**			**61 hrs**	**141 hrs**	**202 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
2		**Design**	**20.25 days**	**192 hrs**	**61 hrs**	**141 hrs**	**202 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
3		**High Level Design Document**	**11.25 days**	**80 hrs**	**61 hrs**	**29 hrs**	**90 hrs**	**Thu 4/16/15**	**Fri 5/1/15**		
4	✓	Get Inputs for High Level Design Document	2 days	16 hrs	16 hrs	0 hrs	16 hrs	Thu 4/16/15	Fri 4/17/15		Resource 1
5		Prepare High Level Design Document	6.25 days	40 hrs	45 hrs	5 hrs	50 hrs	Mon 4/20/15	Tue 4/28/15	4	Resource 1
6		Review High Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Tue 4/28/15	Wed 4/29/15	5	Resource 1
7		Rework High Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Wed 4/29/15	Thu 4/30/15	6	Resource 1
8		Obtain Sign Off from Customer	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Thu 4/30/15	Fri 5/1/15	7	Resource 1
9		**Low Level Design Document**	**20.25 days**	**112 hrs**	**0 hrs**	**112 hrs**	**112 hrs**	**Thu 4/16/15**	**Thu 5/14/15**		
10		**Airline Module**	**5 days**	**40 hrs**	**0 hrs**	**40 hrs**	**40 hrs**	**Fri 5/1/15**	**Fri 5/8/15**		
11		Prepare Low Level Design Document	3 days	24 hrs	0 hrs	24 hrs	24 hrs	Fri 5/1/15	Wed 5/6/15	8	Resource 1
12		Review Low Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Wed 5/6/15	Thu 5/7/15	11	Resource 1
13		Rework Low Level Design Document	1 day	8 hrs	0 hrs	8 hrs	8 hrs	Thu 5/7/15	Fri 5/8/15	12	Resource 1
14		**Train Module**	**5 days**	**40 hrs**	**0 hrs**	**40 hrs**	**40 hrs**	**Fri 5/1/15**	**Fri 5/8/15**		
15		Prepare Low Level Design Document	3 days	24 hrs	0 hrs	24 hrs	24 hrs	Fri 5/1/15	Wed 5/6/15	8	Resource 2

- Go to Report Tab and Select Custom to create User defined Reports

Report



- Go to Report Tab and Select Visual Reports to View reports in Visio formats

Exercise – Impact of Task Types

In a new Microsoft Project enter following details :

Task	Task Type	Effort Driven	Work	Duration	Resource Names
Task A	Fixed Work	checked	160 hours	Do not Enter	R1, R2
Task B	Fixed Duration	checked	Do not Enter	10 days	R3, R4
Task C	Fixed Duration	unchecked	Do not Enter	10 days	R5, R6
Task D	Fixed Units	checked	Do not Enter	10 days	R7, R8
Task E	Fixed Units	unchecked	Do not Enter	10 days	R9, R10

The tool calculates Work/Duration columns. What do you notice?

Change only the Resource column by removing one Resource for each task. What do you notice?

Manual Scheduling

- Microsoft Project 2010 and 2013 provide Manual Scheduling option. This option can be used when only a high level WBS is available and task details will be known as the project rolls on.
- Enter a summary task and provide a start and finish date.
- Enter the tasks under the summary task as they become known with the start and finish date.
- If the dates for the tasks are not yet decided you can enter the text TBD.
- If the duration of the tasks exceeds the summary duration warning is highlighted. Right click and select Fix in Task Inspector to fix the errors.