

# CREATE YOUR PHYS523 PROJECT

**DR. RICCARDO LONGO**

**08/24/2023**

**PHYS 523 - FALL 2023**

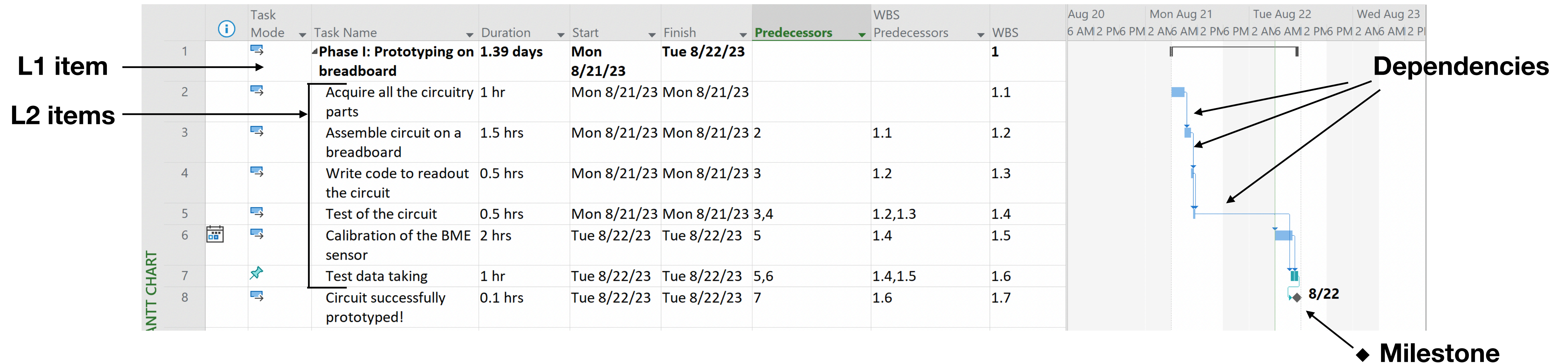
**LECTURE II**



UNIVERSITY OF  
**ILLINOIS**  
URBANA-CHAMPAIGN

# WHERE WE LEFT OFF ON TUESDAY

- Let's start together and try to replicate the simple WBS shown in this Gantt chart



- Let's take it to the **interactive mode** from now on!
- Next step is to define Phase II - design and production of PCB and its 3D-printed case
- Then you begin with Phase III - Assembly, Test and Data taking
- The time between tasks at the moment is not crucial - we will discuss this in the next lectures! Focus on dependencies and milestones

**DID YOU MANAGE TO CARRY OUT THIS EXERCISE?**

# TASKS IN MS PROJECT

- On Tuesday, we introduced the **Tasks**, and we have seen how to declare and group tasks in a project
- Let's now dig further into how we can manage a task through the project interface!

Task management commands

Split tasks in sub-tasks

Mark progress

Update task according to dependencies that may be late

Unlink tasks

The screenshot shows the Microsoft Project interface. The ribbon includes 'File', 'Task', 'Resource', 'Report', 'Project', 'View', and 'Help'. The 'Task' ribbon is active, showing options like 'Gantt Chart', 'Paste', 'Format Painter', 'Mark on Track', 'Respect Links', 'Inactivate', 'Manually Schedule', 'Auto Schedule', 'Inspect', 'Move', 'Mode', 'Task', 'Summary', 'Milestone', and 'Deliverable'. Below the ribbon is a task list table with columns for Task Name, Duration, Start, Finish, Predecessors, and WBS. The first task is 'Phase I: Prototyping on breadboard' with a duration of 1.39 days, starting on Mon 8/21/23 and finishing on Tue 8/22/23. Below the table is a Gantt chart showing task bars and their dependencies.

Task Name	Duration	Start	Finish	Predecessors	WBS
Phase I: Prototyping on breadboard	1.39 days	Mon 8/21/23	Tue 8/22/23		1
Acquire all the circuitry parts	1 hr	Mon 8/21/23	Mon 8/21/23		1.1
Assemble circuit on a breadboard	1.5 hrs	Mon 8/21/23	Mon 8/21/23	2	1.2

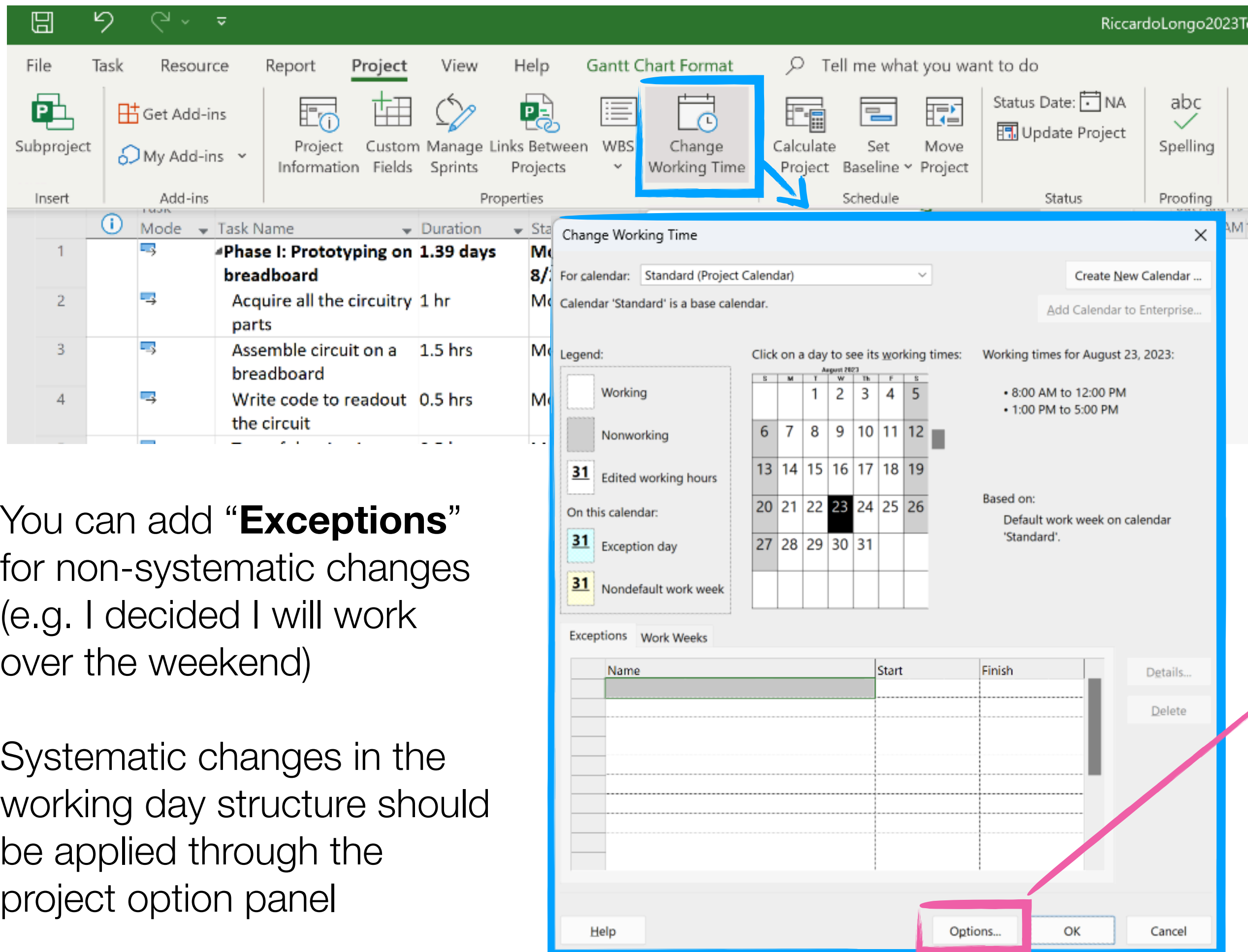
Tasks can be click-and-dragged in the Gantt chart (to adjust the timeline)

Standard editing commands for the WBS text entries - i.e. you can color differently tasks assigned to different group members

Duration: provided a start day, set the finish date accordingly. You can also work the other way around, setting start and finish date and get the duration accordingly  
**But what time frame is considered?**

# WORKING DAYS IN MS PROJECT

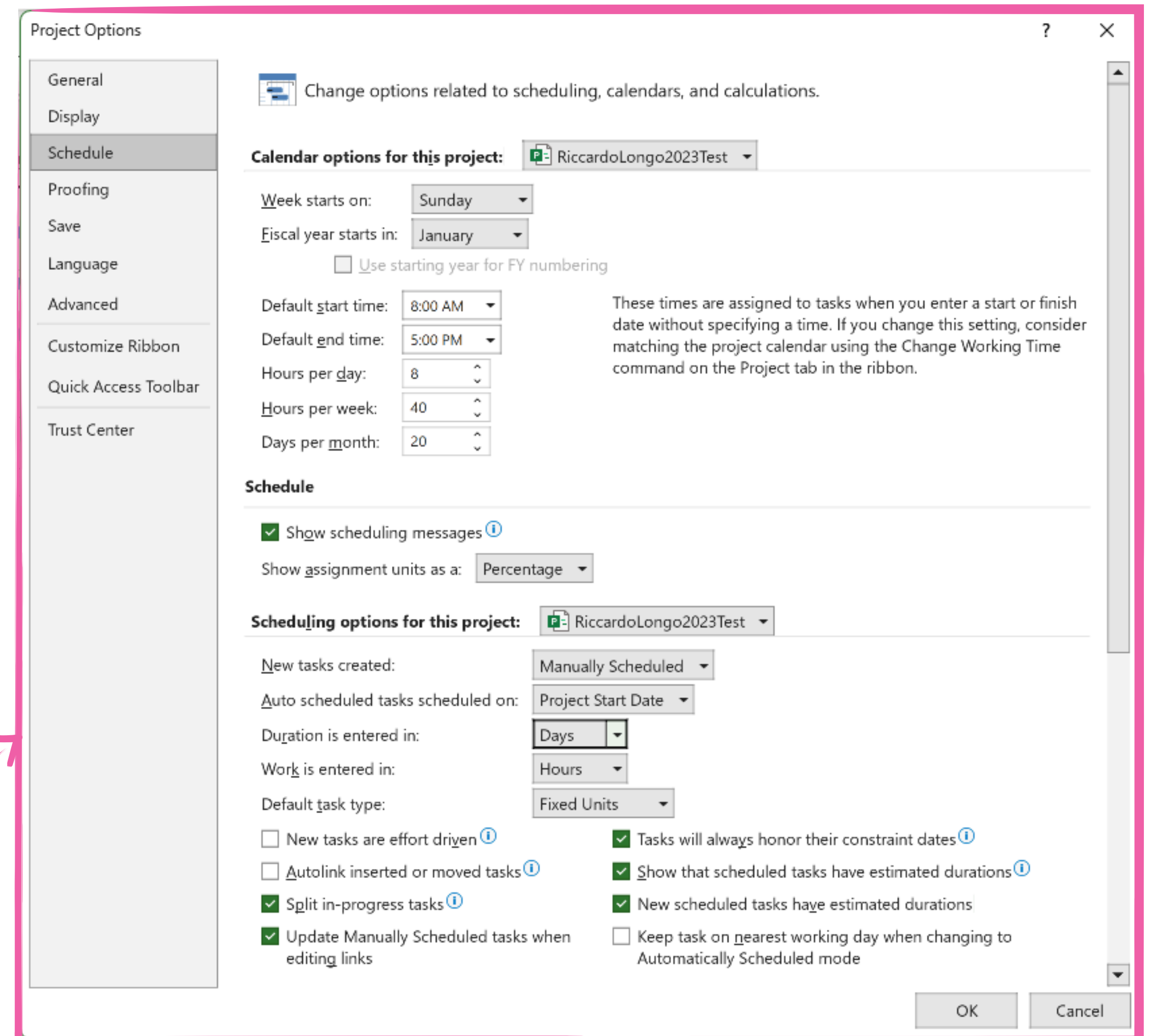
The whole scheduling of tasks is progressive - and takes into account working days only. But how are these working days declared?



The screenshot shows the MS Project ribbon with the 'Change Working Time' button highlighted in a blue box. Below it, the 'Change Working Time' dialog box is open, showing a calendar for August 2023. The dialog box has a legend for 'Working' (white), 'Nonworking' (grey), 'Edited working hours' (blue), 'Exception day' (green), and 'Nondefault work week' (yellow). The calendar shows August 23, 2023, as an exception day. The dialog box also has an 'Options...' button highlighted in a pink box.

You can add “**Exceptions**” for non-systematic changes (e.g. I decided I will work over the weekend)

Systematic changes in the working day structure should be applied through the project option panel



The screenshot shows the 'Project Options' dialog box, specifically the 'Schedule' tab. The 'Calendar options for this project' section shows 'RiccardoLongo2023Test' selected. The 'Week starts on' is set to 'Sunday' and 'Fiscal year starts in' is 'January'. The 'Default start time' is '8:00 AM' and 'Default end time' is '5:00 PM'. The 'Hours per day' is '8', 'Hours per week' is '40', and 'Days per month' is '20'. The 'Schedule' section has 'Show scheduling messages' checked and 'Show assignment units as a' set to 'Percentage'. The 'Scheduling options for this project' section has 'New tasks created' set to 'Manually Scheduled', 'Auto scheduled tasks scheduled on' set to 'Project Start Date', 'Duration is entered in' set to 'Days', and 'Work is entered in' set to 'Hours'. The 'Default task type' is 'Fixed Units'. There are several checkboxes for task scheduling options, including 'New tasks are effort driven', 'Autolink inserted or moved tasks', 'Split in-progress tasks', 'Update Manually Scheduled tasks when editing links', 'Tasks will always honor their constraint dates', 'Show that scheduled tasks have estimated durations', and 'New scheduled tasks have estimated durations'. The 'Keep task on nearest working day when changing to Automatically Scheduled mode' checkbox is unchecked.

# WORKING DAYS IN MS PROJECT

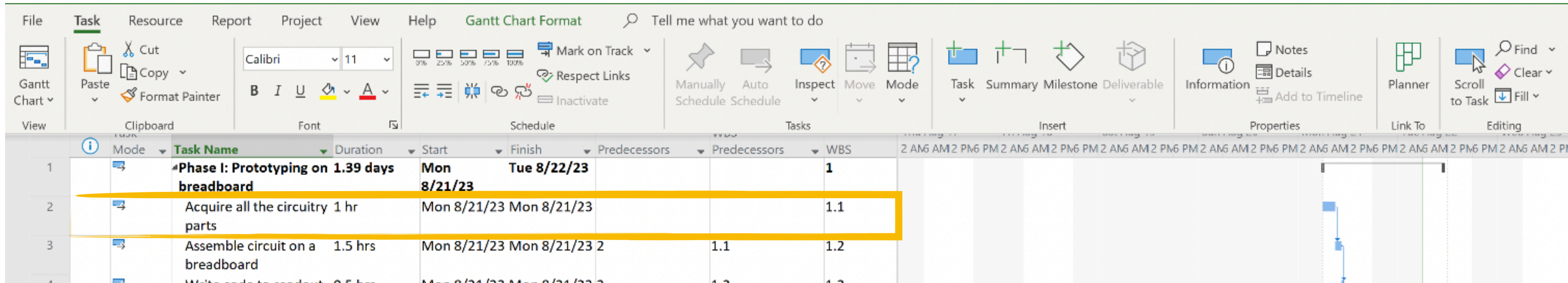
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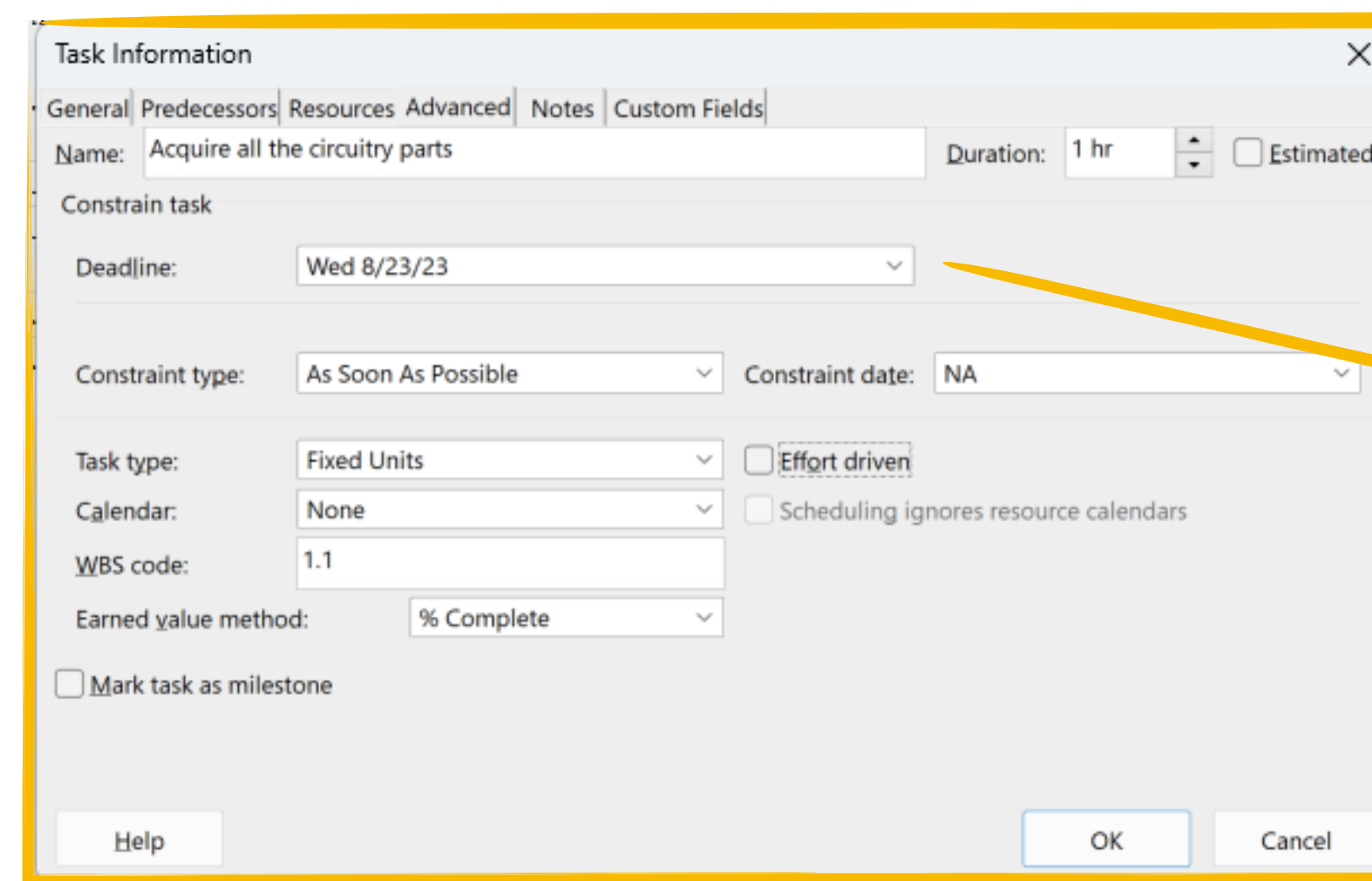
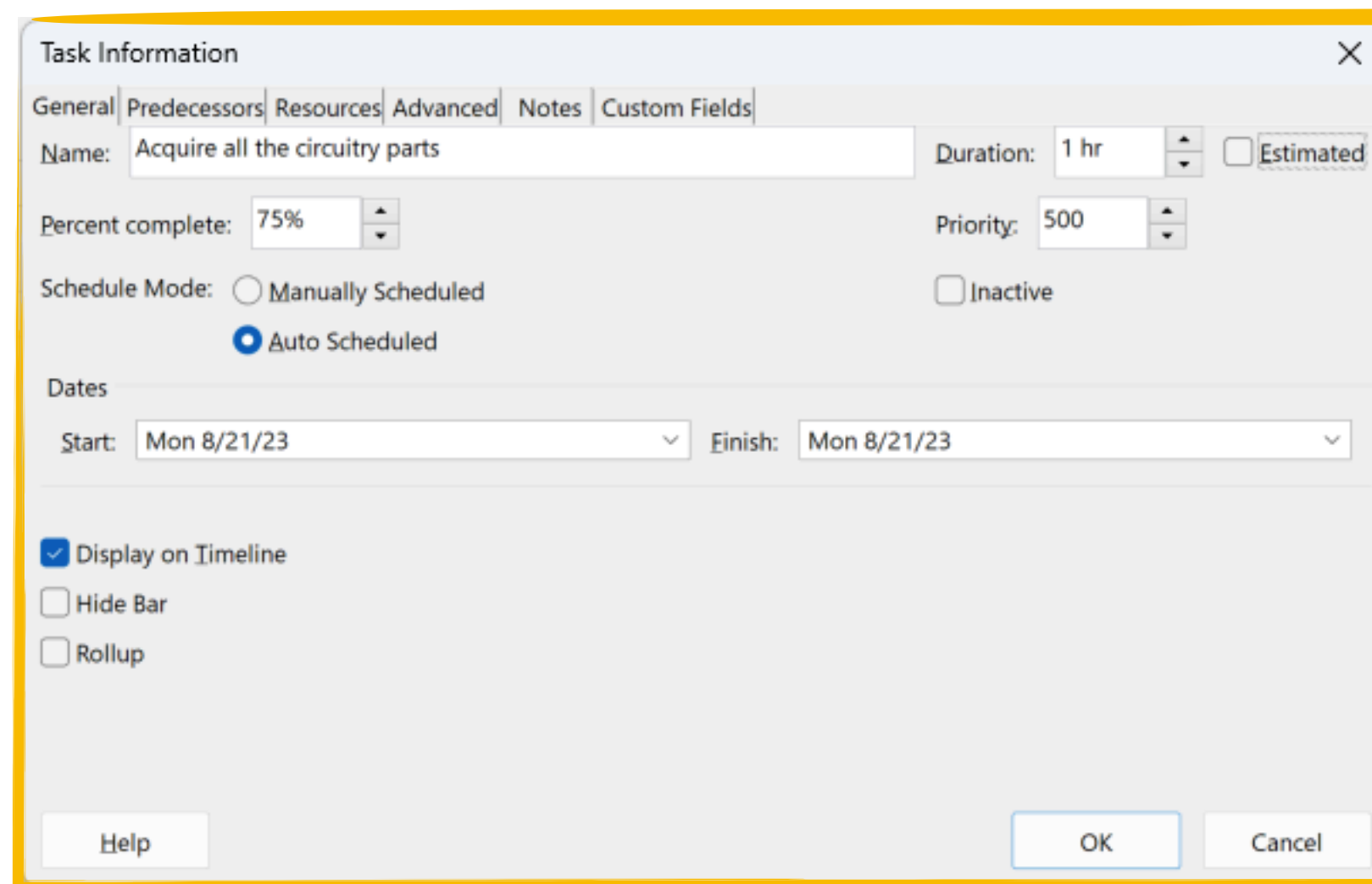
Systematic changes in the working day structure should be applied through the project option panel

**! Be realistic and sustainable!**  
A project with 7/7 12h/day effort is not going to convince anyone...

# MORE ABOUT THE TASKS

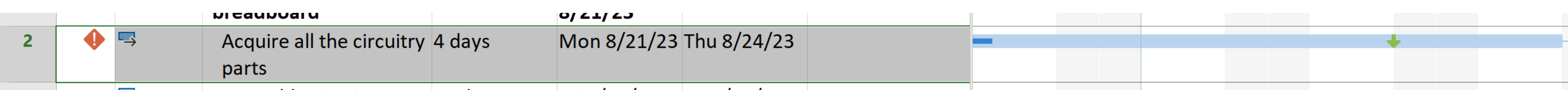
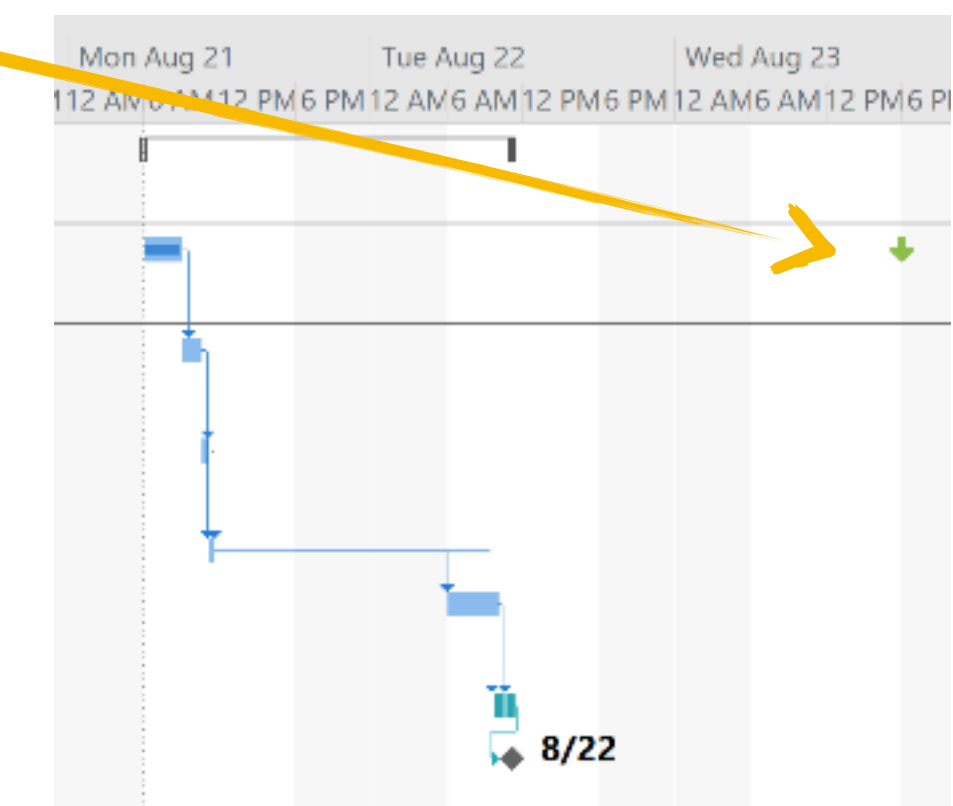


If you double click on a task - you get access to a panel with further options to edit it



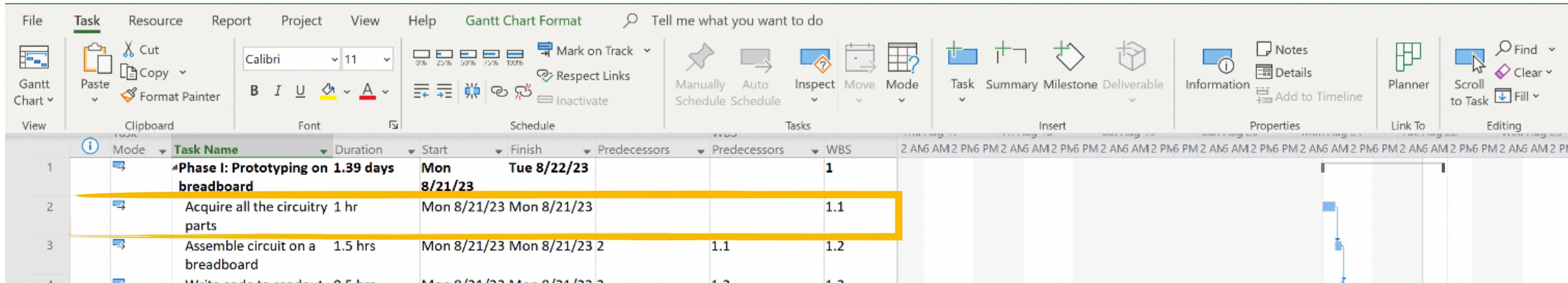
↓ **Deadline marker**

In case you need a visual reminder for a particular cutoff on your schedule!

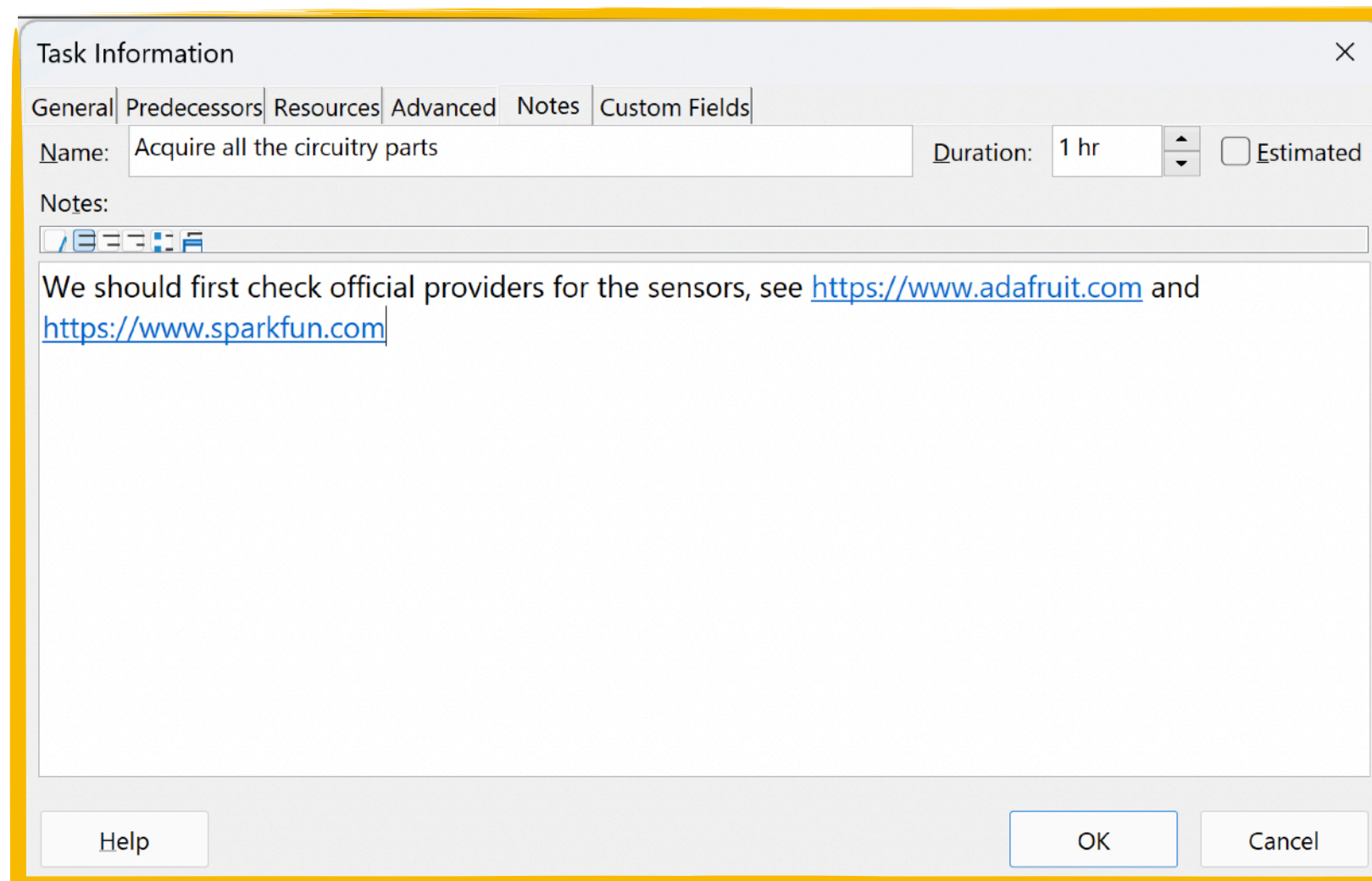


**If you extend the task past the deadline - the software gives you a warning**

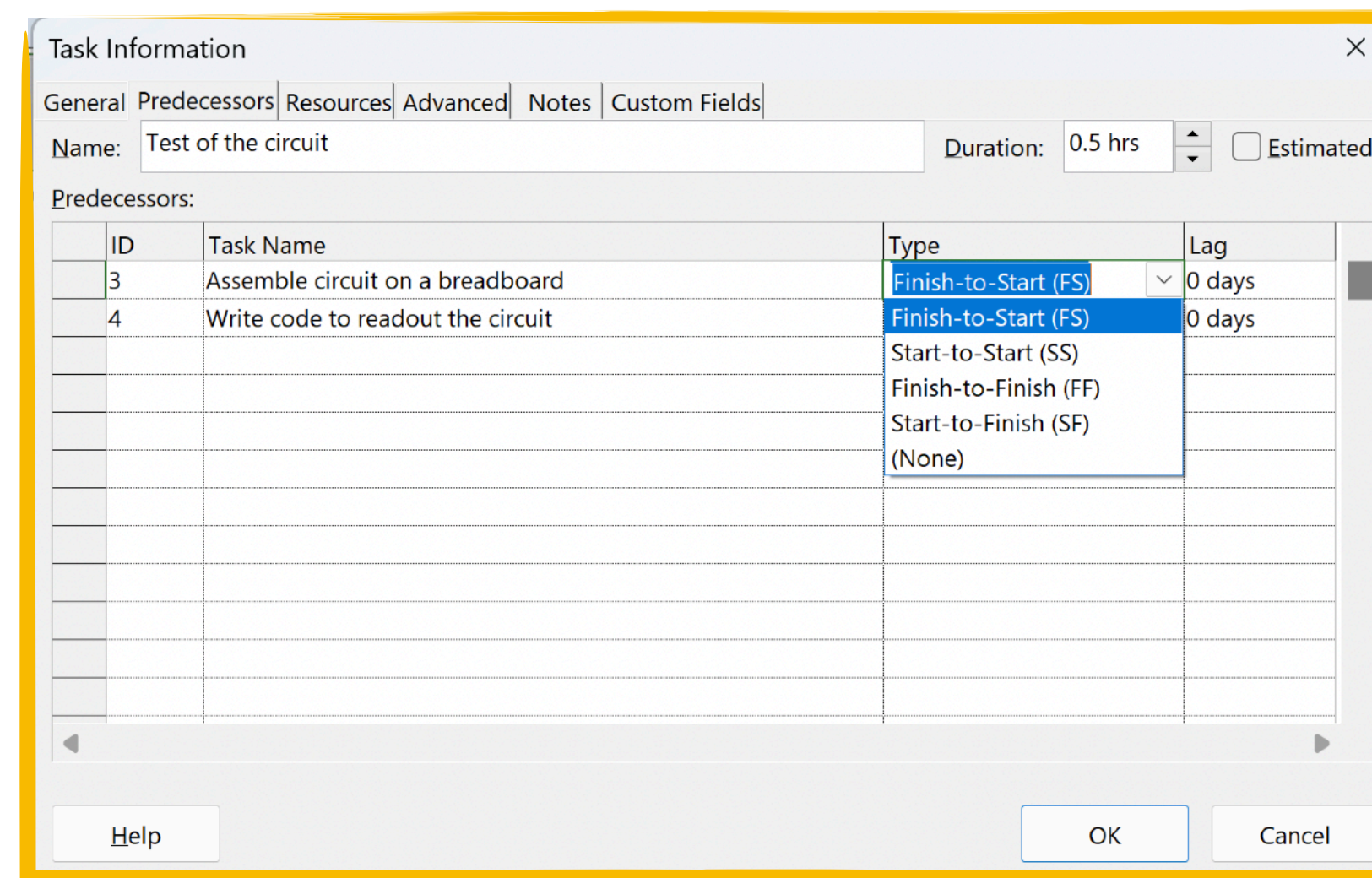
# MORE ABOUT THE TASKS



If you double click on a task - you get access to a panel with further options to edit it

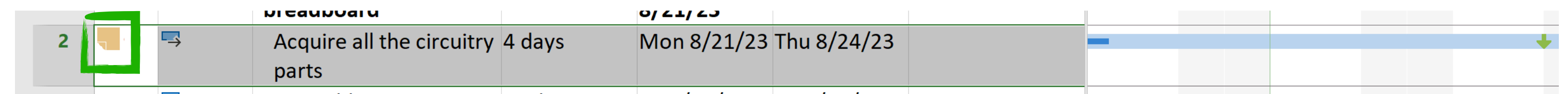
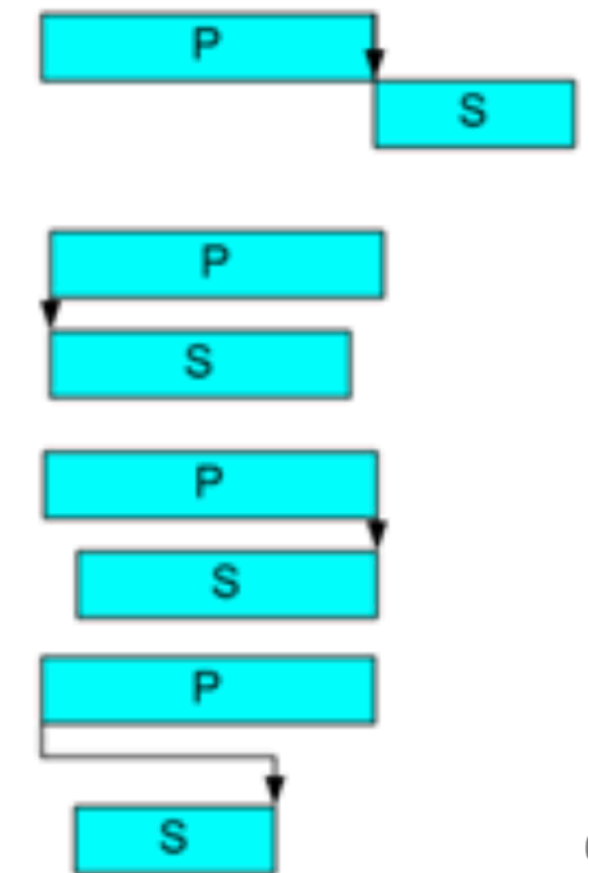


You can add notes specific to the task - they will appear as an icon next to the main list of tasks



You can also set a specific type dependency between task:

- finish to start
- start to start
- finish to finish
- start to finish



# HOW DO WE MANAGE TASKS ASSIGNMENT?

- In a project, different team members that can contribute hours of work are seen as **resources**

The screenshot displays the Microsoft Project interface. The main window shows a Gantt chart with a task named "Acquire all the circuitry parts" assigned to a resource. A "Resource Information" dialog box is open, showing details for "Riccardo Longo".

**Resource Information Dialog:**

- Resource name: Riccardo Longo
- Initials: RL
- Email: rlongo@illinois.edu
- Group: PHYS523 - Staff
- Code: (empty)
- Type: Work
- Booking type: Committed
- Material label: (empty)
- Generic:  Budget:  Inactive:
- Change Working Time ...

**Resource Availability Table:**

Available From	Available To	Units
NA	NA	100%

**Task List Table:**

Task Name	Duration	Start
Phase I: Prototyping on breadboard	1.7 days	Mon 8/21/23
Acquire all the circuitry parts	1 day	Mon 8/21/23
Assemble circuit on a breadboard	1.5 hrs	Tue 8/22/23
Write code to readout the circuit	0.5 hrs	Tue 8/22/23
Test of the circuit	0.5 hrs	Tue 8/22/23
Calibration of the BME sensor	2 hrs	Tue 8/22/23
Test data taking	1 hr	Tue 8/22/23
Circuit successfully prototyped!	0.1 hrs	Tue 8/22/23

Here you can create a record for each of you!  
Type —> Work  
Booking type —> Committed? 😊



# HUMAN RESOURCE PERSONAL MANAGEMENT

- Each work resource can be personalized to take into account various aspects

- Add exceptions for days of special (in)availability

- Note: no modification of the main calendar (e.g. slide 4)

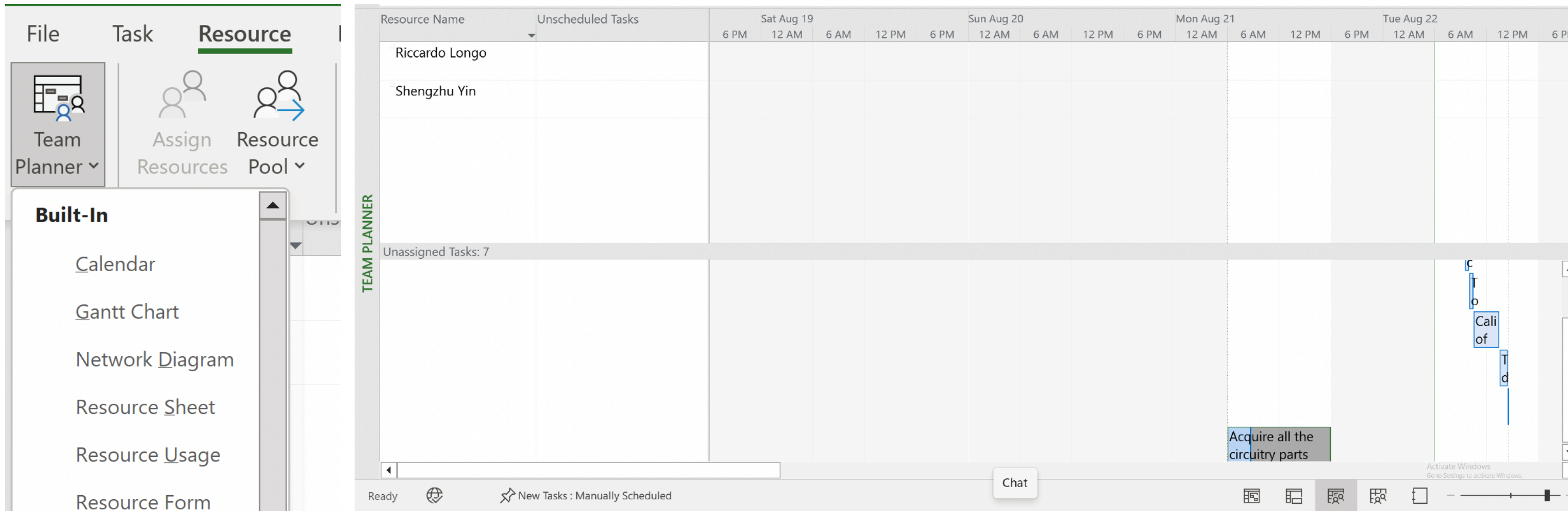
➔ make sure you define your main calendar to best match the overall availability of the team

The 'Change Working Time' dialog box shows the resource calendar for 'Riccardo Longo'. The base calendar is set to 'Standard'. A calendar grid for August 2023 is displayed, with August 12, 2023, highlighted as a nonworking day. A legend indicates that white squares represent 'Working' days, grey squares represent 'Nonworking' days, a blue square with '31' represents 'Edited working hours', a light blue square with '31' represents an 'Exception day', and a yellow square with '31' represents a 'Nondefault work week'. Below the calendar, there is a table for 'Exceptions' with columns for 'Name', 'Start', and 'Finish'. The table is currently empty. Buttons for 'Help', 'OK', and 'Cancel' are visible at the bottom.

The 'Resource Information' dialog box displays details for the resource 'Riccardo Longo'. The 'General' tab is active, showing fields for 'Resource name', 'Email', 'Logon Account...', 'Booking type', 'Initials', 'Group', 'Code', 'Type', and 'Material label'. The 'Resource Availability' section contains a table with columns for 'Available From', 'Available To', and 'Units'. The table shows a single entry with 'NA' for both 'Available From' and 'Available To', and '100%' for 'Units'. Buttons for 'Help', 'Details...', 'OK', and 'Cancel' are visible at the bottom. A pink box highlights the 'Change Working Time ...' button in the bottom right corner.

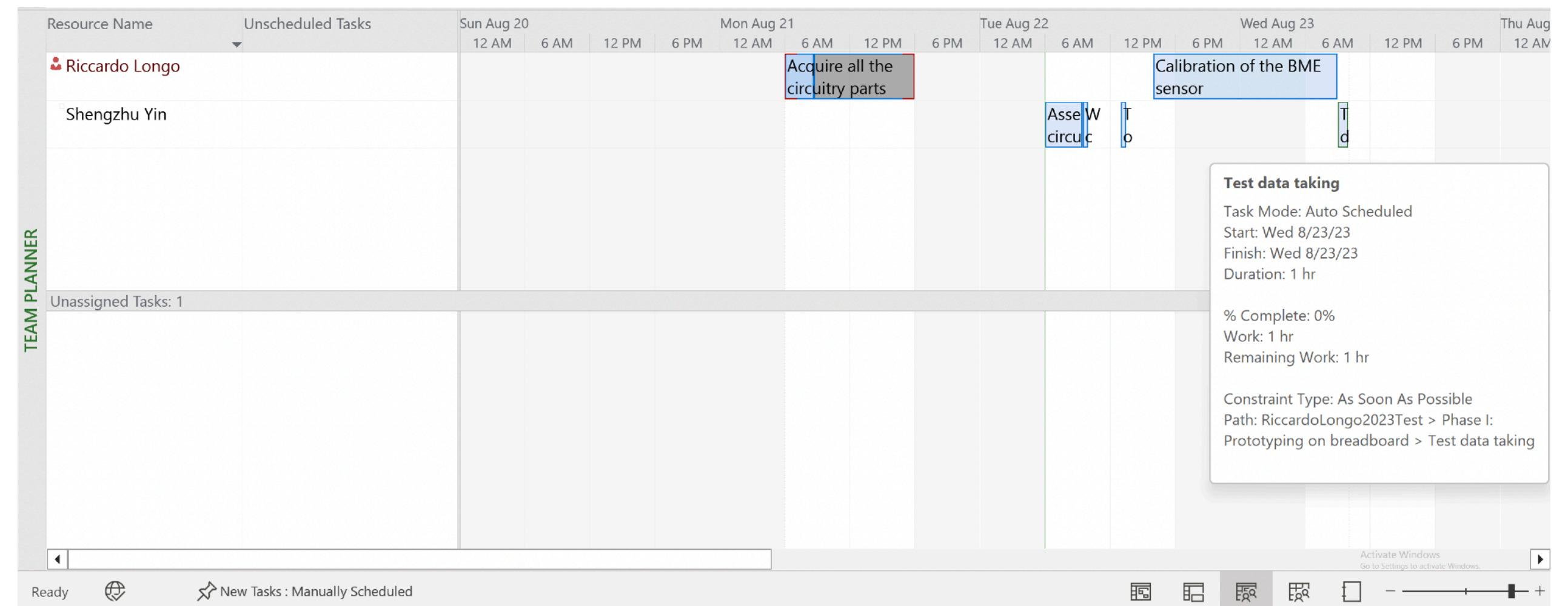
# ASSIGNING WORKFORCE TO A TASK

- There are different ways to do the task assignment - the easiest one is by far using the Team Planner interface



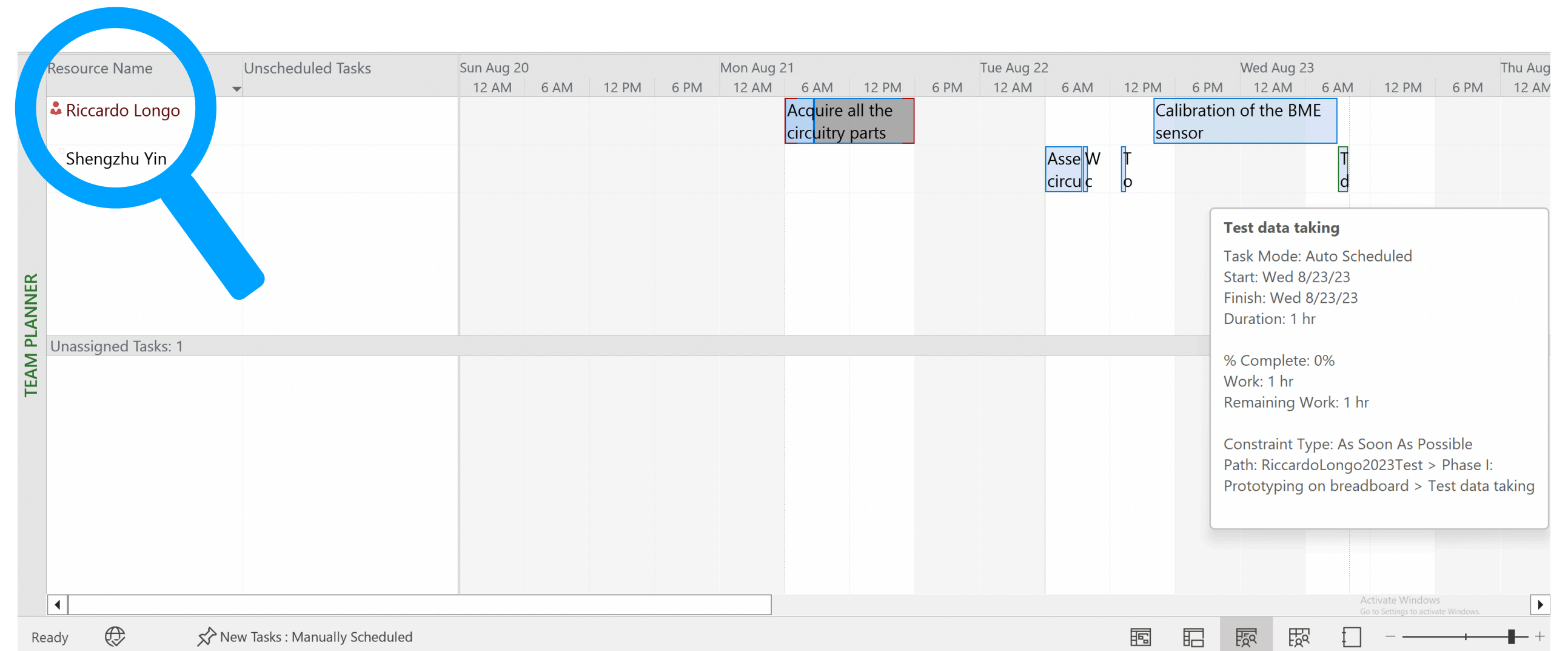
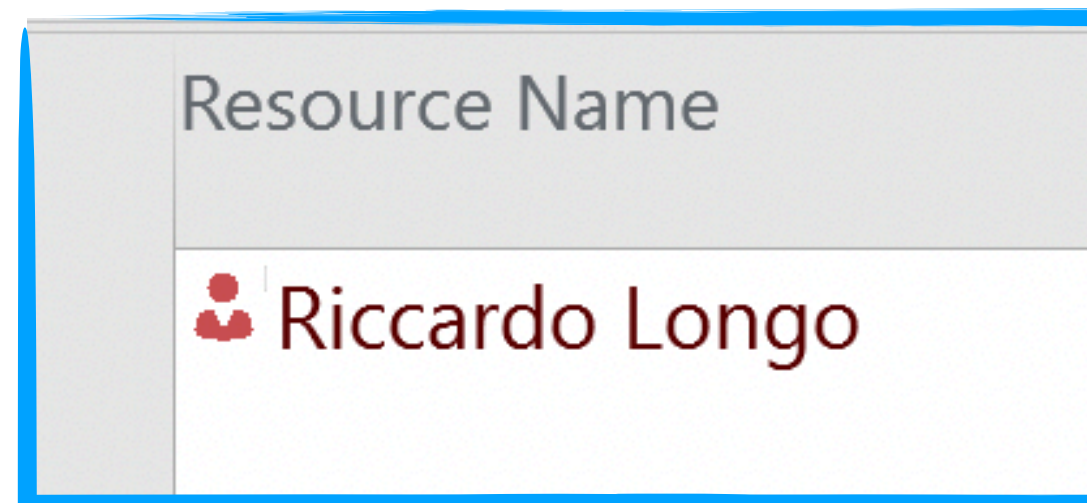
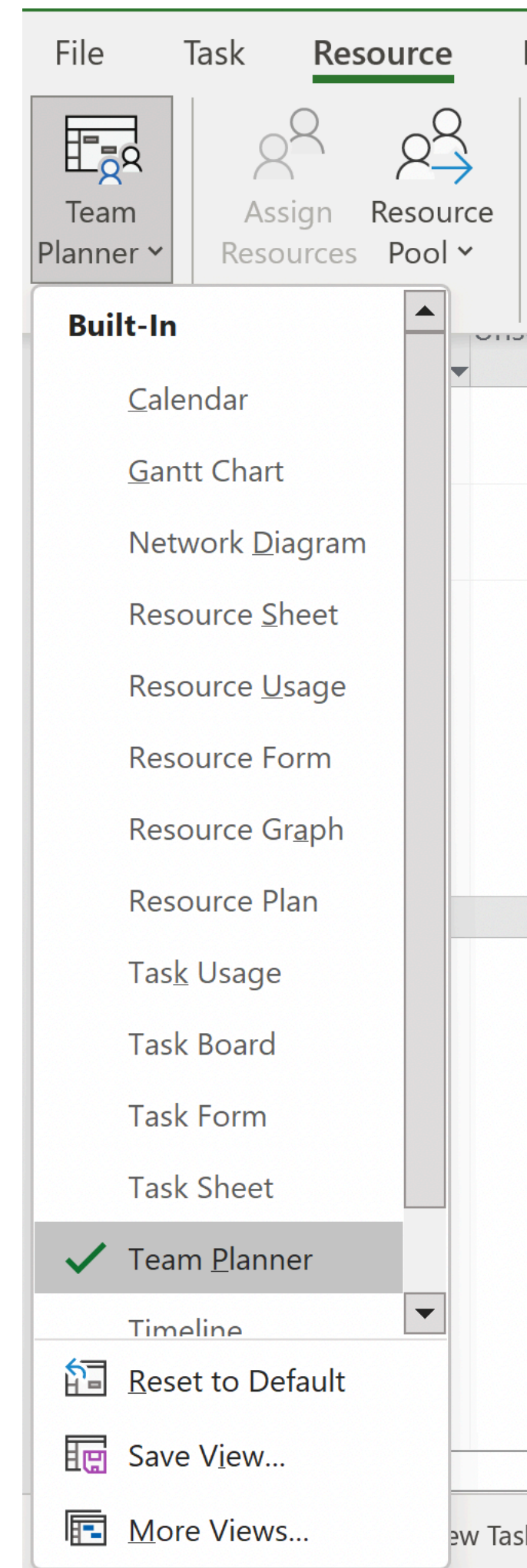
- Here you can either right-click on each task available on the bottom panel - and “reassign to” the corresponding team member you want put in charge
- Or - you can simply drag and drop the task on the resource you want to “load” with the it.

- Please note that the software checks the time location of the drag-and-drop, and provides you feedback in case you generate conflicts between dependencies by wrongly scheduling the task assignment.



# OVERALLOCATED RESOURCES

- The red tag next to my name indicates that the task assignment I made is over allocating resources, e.g. assigning not-available resources to the task
- Why?

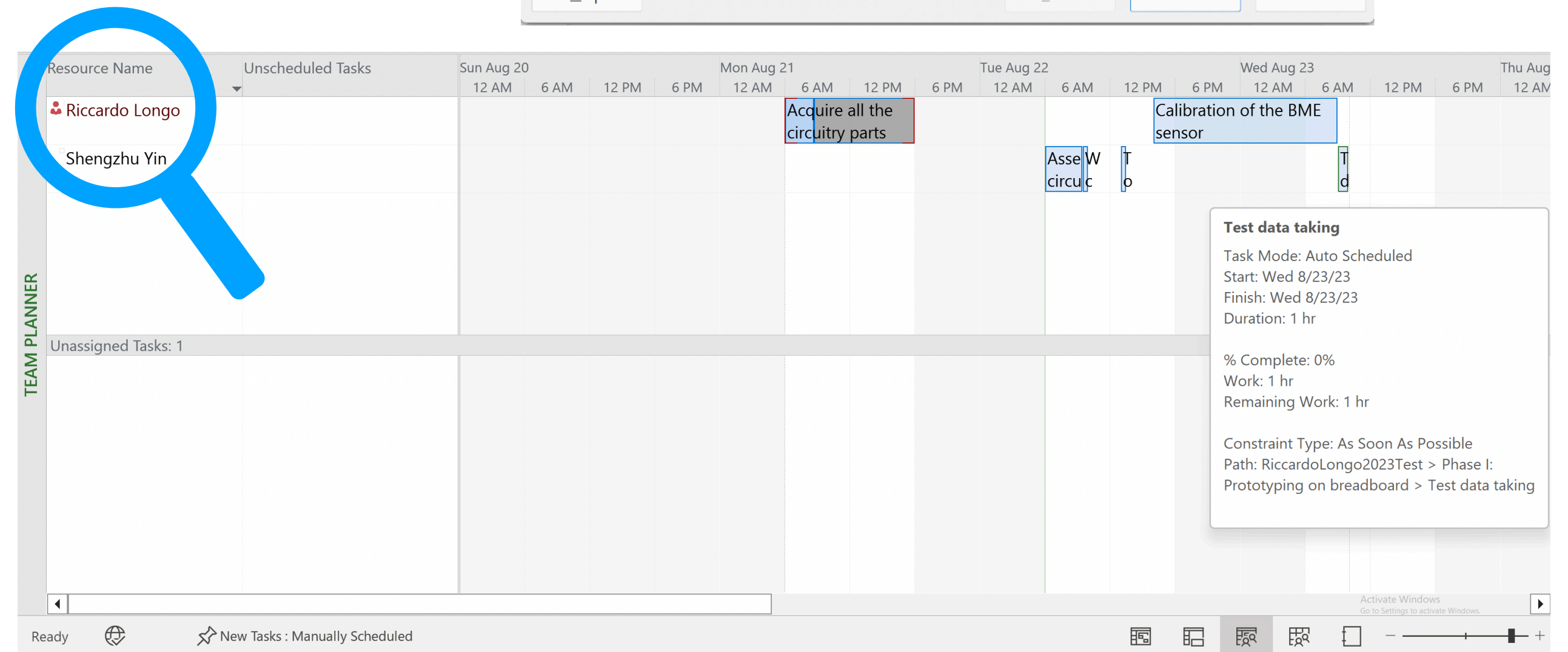
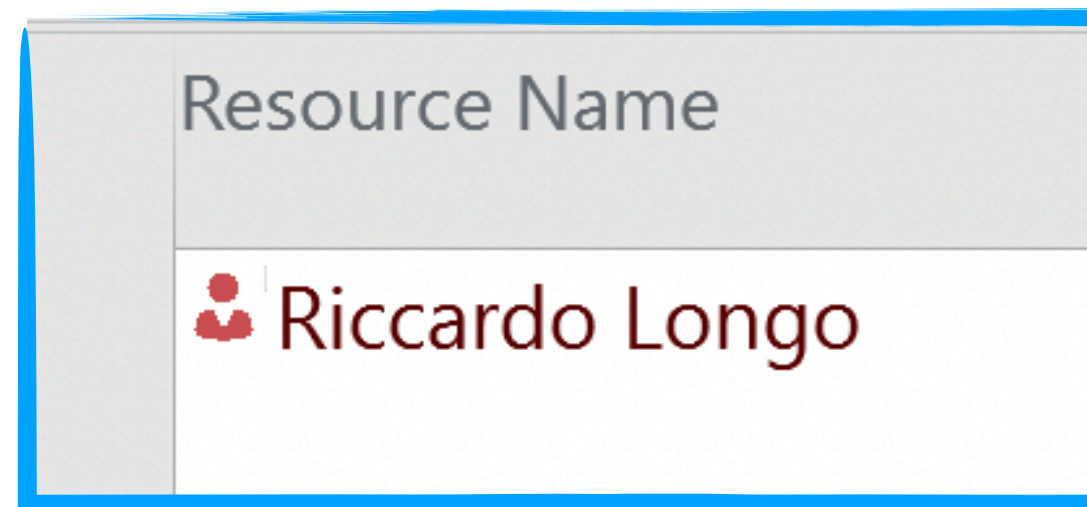


# OVERALLOCATED RESOURCES

- The red tag next to my name indicates that the task assignment I made is over allocating resources, e.g. assigning not-available resources to the task
- Why?
- Because my workforce was indicated to be available starting from the day after the tasks scheduling!

Resource Information dialog box showing details for Riccardo Longo. The Resource Availability table is highlighted.

Available From	Available To	Units
8/22/2023	9/2/2023	100%



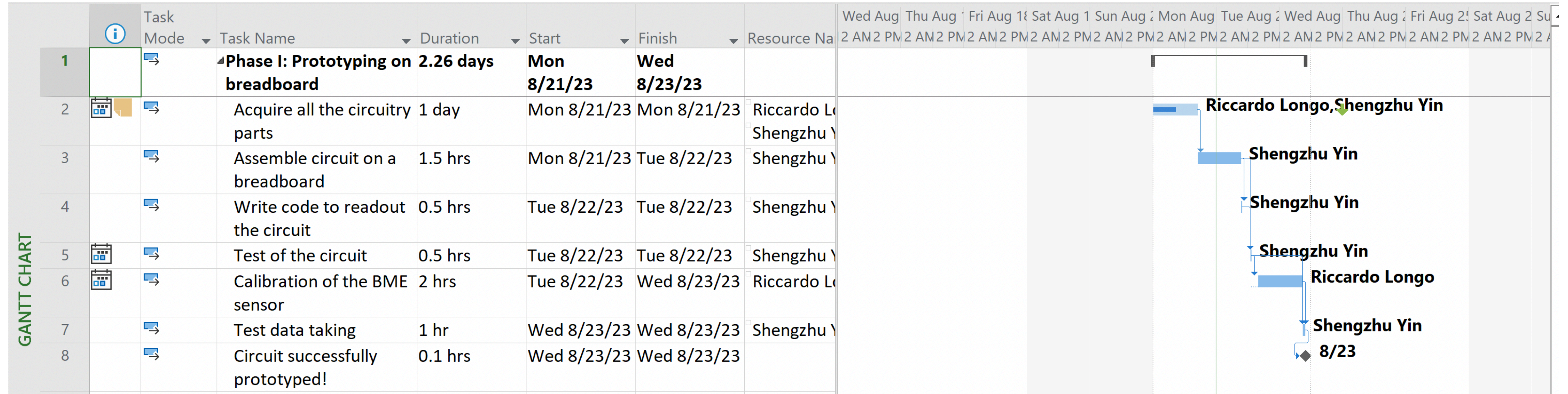
# TASK USAGE WORKSPACE

The screenshot shows the 'Resource' menu in a software application. The menu is open, displaying various options. The 'Task Usage' option is highlighted with a blue border. Other options include 'Calendar', 'Gantt Chart', 'Network Diagram', 'Resource Sheet', 'Resource Usage', 'Resource Form', 'Resource Graph', 'Resource Plan', 'Task Board', 'Task Form', 'Task Sheet', 'Team Planner', 'Timeline', 'Reset to Default', 'Save View...', and 'More Views...'. The 'Team Planner' option has a green checkmark next to it.

							Aug 20, '23					
Task Mode	Task Name	Work	Duration	Start	Details	S	M	T	W	T	F	
1	Phase I: Prototyping on	13.5 hrs	2.26 days	Mon 8/21/23	Work		8.02h	3.48h	2h			
2	Acquire all the circuitry	8 hrs	1 day	Mon 8/21/23	Work		8h					
	Riccardo Longo	0.75 hrs		Mon 8/21/23	Work		0.75h					
	Shengzhu Yin	7.25 hrs		Mon 8/21/23	Work		7.25h					
3	Assemble circuit on a br	1.5 hrs	1.5 hrs	Mon 8/21/23	Work		0.02h	1.48h				
	Shengzhu Yin	1.5 hrs		Mon 8/21/23	Work		0.02h	1.48h				
4	Write code to readout t	0.5 hrs	0.5 hrs	Tue 8/22/23	Work			0.5h				
	Shengzhu Yin	0.5 hrs		Tue 8/22/23	Work			0.5h				
5	Test of the circuit	0.5 hrs	0.5 hrs	Tue 8/22/23	Work			0.5h				
	Shengzhu Yin	0.5 hrs		Tue 8/22/23	Work			0.5h				
6	Calibration of the BME s	2 hrs	2 hrs	Tue 8/22/23	Work			1h	1h			
	Riccardo Longo	2 hrs		Tue 8/22/23	Work			1h	1h			
7	Test data taking	1 hr	1 hr	Wed 8/23/23	Work				1h			
	Shengzhu Yin	1 hr		Wed 8/23/23	Work				1h			
8	Circuit successfully prot	0 hrs	0.1 hrs	Wed 8/23/23	Work							

- Provides you an overview of the workforce allocation on different tasks per each day
- Very useful to see if there is available manpower for certain unassigned tasks - or if there are over-allocated resources
- You can also use this interface to assign multiple resources to the same task - or redistribute the work between different resources!

# UPDATED GANTT CHART



- Your Gantt chart now automatically reflects the assignments you have made in the team planner interface!
- The examples made in these slides are related to short tasks - that can be recovered easily if there is lack of availability on short notice by one of the resources
- It will be way more important to account properly for the manpower in tasks that are more complex and require week(s) long work [same timescale as the milestones set for this class - that you want to meet]
- We will discuss more on how to handle these aspects next week!

# IT'S TIME TO START SETTING UP YOUR GROUP PROJECT!

- You should now have the basics of MS Project and can use them to create your Project file and start planning your PHYS523 activities!
- The idea is that you start sketching the project plan for this semester, define your team, start laying out tasks and dependencies, and also set up deadlines for critical tasks.
- This first step is still quite in the “ideal” world. We will talk more next week about how to turn your project into a bullet-proof plan that takes into account everything that Murphy’s law can bring you!

My files > PHYS523\_ClassOf2023-2024 > GroupProjects

Name	Modified	Modified By	File size	Sharing
FlowMeterProject	Yesterday at 9:41 PM	Longo, Riccardo	0 items	Shared
KrannertProject	Yesterday at 9:40 PM	Longo, Riccardo	0 items	Shared
PulseOximetryProject	Yesterday at 9:41 PM	Longo, Riccardo	0 items	Shared
SparkfunProject	Yesterday at 9:41 PM	Longo, Riccardo	0 items	Shared

- Every group should have got an invitation for a **dedicated folder on OneDrive**
- Please **create your project file there** and start editing together!
- Remember: you can edit the file only once per each - but you can also create sub-projects out of the file and copy them into the master project later. Still, at this initial stage, is still better that you discuss together how to setup tasks and assignments!