

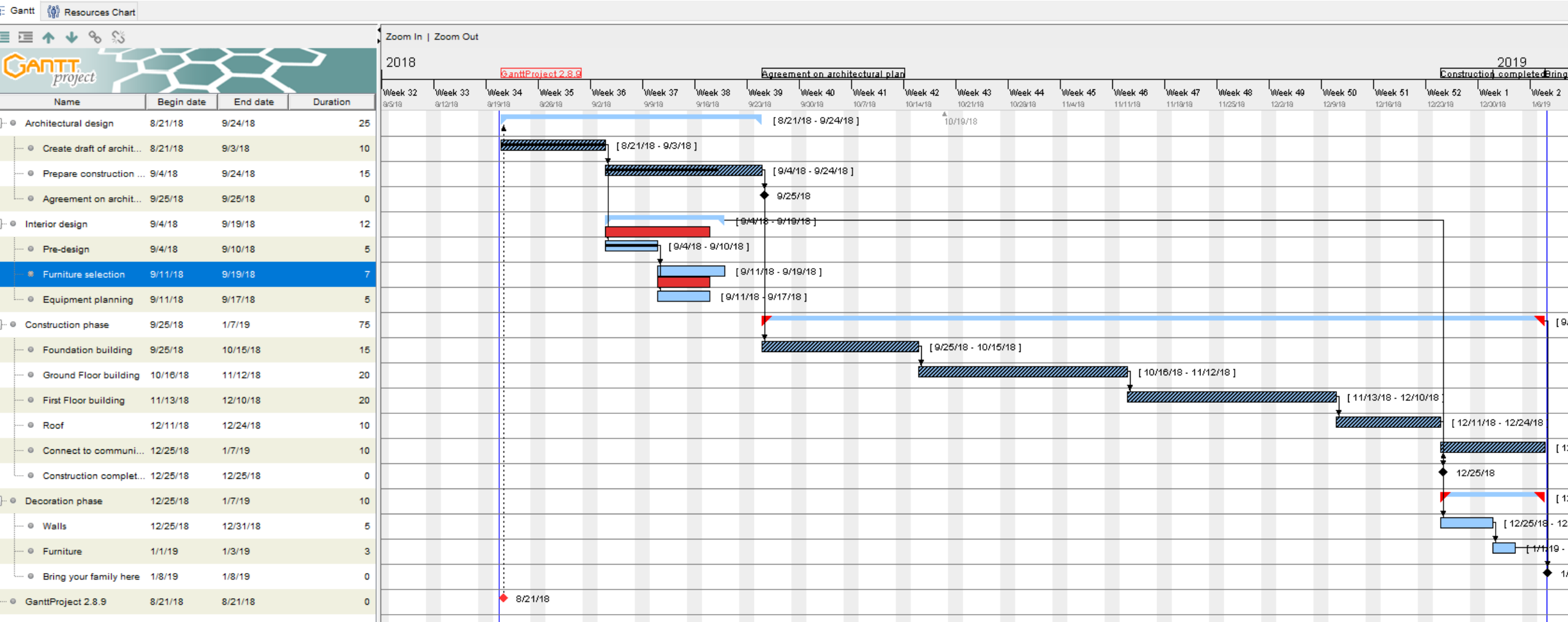


Scheduling

Scheduling

- Sequencing of tasks in the WBS to estimate milestone dates
- Typically done with a computer program
- The input is tasks (from WBS) along with each task's duration, any predecessors and required resources
- Can also enter milestones (end of specific tasks), including project completion
- Result is a chart showing the predicted dates for milestones

Gantt Chart Example



Gantt Chart Elements

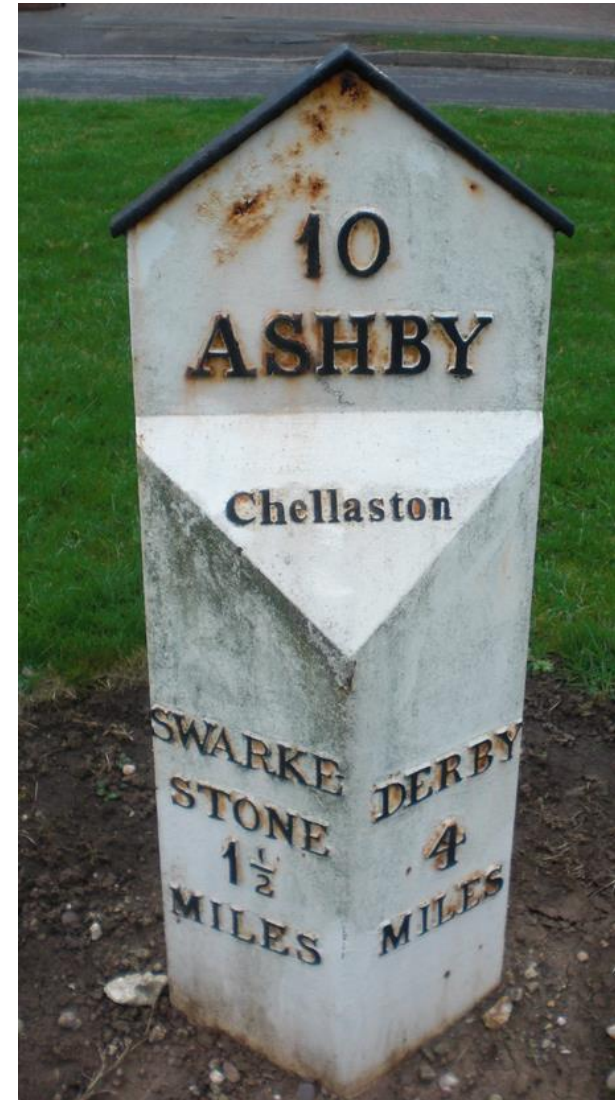
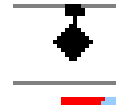
- You can identify the following from the chart:
 - Tasks & sub-tasks
 - Durations
 - Dependencies
 - Percent complete
 - Milestones
 - Critical Path
 - Changes from a baseline

Hierarchy

- As in the WBS, tasks are arranged in a hierarchy
- Can be collapsed to limit detail shown on charts & reports
- Higher-level tasks “roll-up” sub-tasks – add up their durations and costs

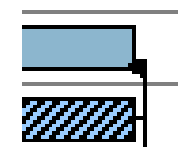
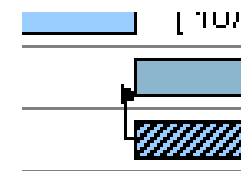
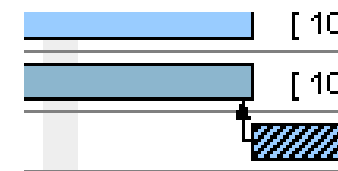
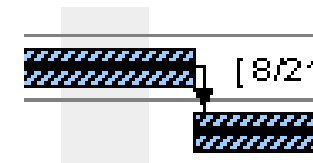
Milestones

- Milestones indicate completion of tasks that are significant to stakeholders
- Has zero duration
- Predecessors will include all tasks required to meet that milestone.
- Typically shown as a black diamond:



Dependencies

- Most common: Finish–Start
 - dependent task starts *after* another finishes
 - Used when one task depends on result of the first
 - e.g. testing must start *after* construction finishes
 - Typically we use only this dependency
 - Arrow points to dependent task
- Start – Finish
 - dependent task finishes *after* another starts
 - e.g. materials storage finishes *after* construction starts
- Start – Start
 - dependent task starts *after* another starts
 - e.g. shipping starts after production starts
- Finish – Finish
 - dependent task finishes *after* another finishes
 - e.g. equipment lease must finish *after* project finishes

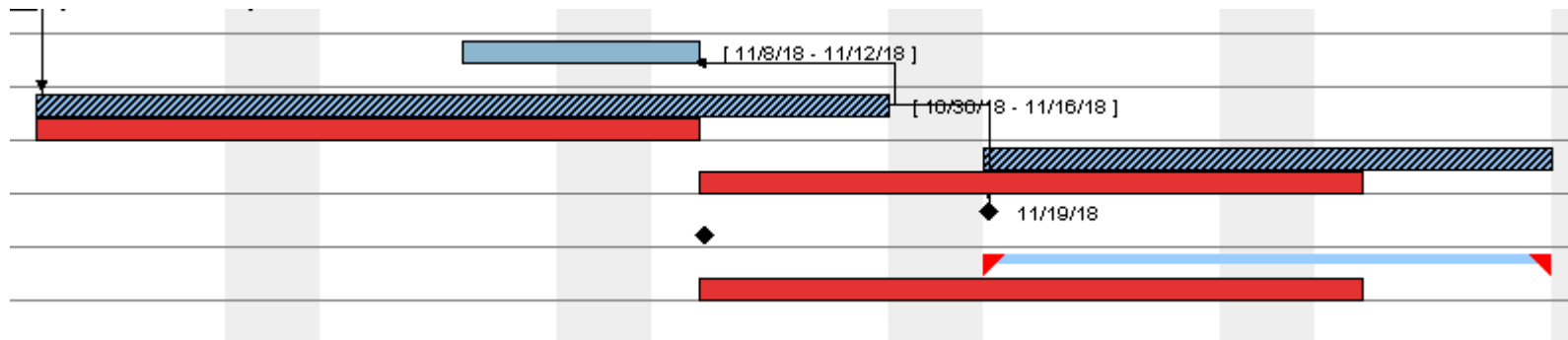


Updating the schedule

- You should update the percentage completion or predicted task durations; edit the tasks & their properties
 - As you become more familiar with the project
 - You can determine if you are behind/ahead of schedule
 - You can re-allocate resources if possible
 - Useful for documenting your work & planning future projects

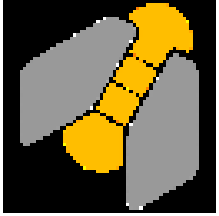
Baselines

- The initial approved schedule is the *baseline*
- Stakeholders should be informed if the schedule changes; this become the new baseline
- Most software allows for multiple baselines to be defined
- Software can show deviations between current schedule & one of these baselines



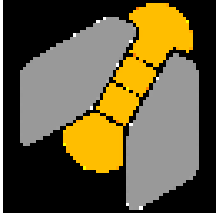
Scheduling Software

- There is a wide choice of scheduling software
- For small projects, only a few features are needed
 - Enter tasks, estimated durations & staff assigned
 - Update task completion percentages
 - Update the schedule over time
 - Generate status reports showing estimates of:
 - Completion Date
 - Cost
 - Resource (typically people) loading & availability
 - Tasks on the critical path



ganttproject

- We've used ganttproject in previous years
- The good:
 - Includes all required features
 - Open-source and portable (written in java)
 - Good, concise introductory video
 - Can import/export projects in Microsoft Project formats
- The bad:
 - Limited reporting options (only one is date ranges)
 - No task splitting (across breaks, completed/not-completed)
 - Bit-mapped reports (use screen capture or export to PDF)



ganttproject *(ctd)*

- Download from: <https://www.ganttproject.biz/download/free>
- Introductory YouTube video: <https://youtu.be/5rHCSa5ad34>
- Java runtime must be installed:
 - <https://www.oracle.com/technetwork/java/javase/overview/index.html>
 - or
 - <https://jdk.java.net/java-se-ri/13>

Other options

- Microsoft Project
 - Familiar interface, popular
 - Free download for ECET students (see IT KB article)
- [ProjectLibre](#)
 - Free, open-source
 - Nicer interface than ganttproject
 - <https://www.youtube.com/watch?v=9xwR4JCBaIU&feature=youtu.be>
- Many on-line options
 - Consider issues of confidentiality and availability

ELEX 4560 Assignment

- Create a Gantt chart using your favourite scheduling software and your project's WBS
- Submit a PDF of your chart (one page, landscape format) to the Learning Hub assignment dropbox
- Your chart should include:
 - Hierarchy of tasks (as per your WBS or in more detail)
 - Reasonable task durations
 - Task dependencies
 - Milestones for presentation and report submission