

Software Project Management (WBS and Meeting Minutes)

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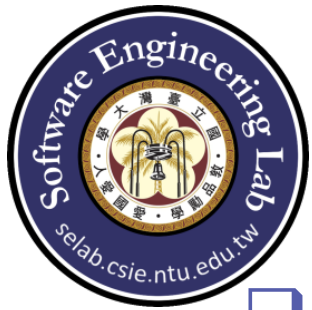
What is Project?

- ❑ Project - an endeavor undertaken to create a **unique** product or service
 - Has a definite beginning and end and interrelated activities
 - Cease when declared objectives have been attained
- ❑ Projects are unique - characteristics are **progressively elaborated**
- ❑ Scope of project should remain **constant**



What is Project Management?

- ❑ Project Management: the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder's needs and expectations from a **defined project** (a defined beginning and end, a defined scope and resources) - balancing the following:
 - Scope, time, cost, and quality
 - Requirements (needs) vs. unidentified requirements (expectations)



Work Breakdown Structure (WBS)

☐ Scope

- Use WBS to establish a project's scope

☐ Estimation

- Estimate required staff, budget, and time based on WBS

☐ Scheduling

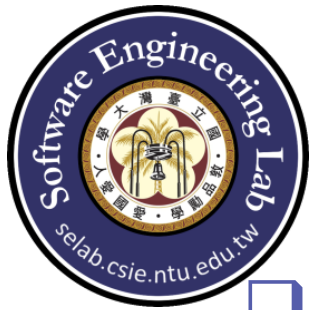
- Develop project schedule based on WBS

☐ Teamwork

- Assign tasks to team members based on WBS

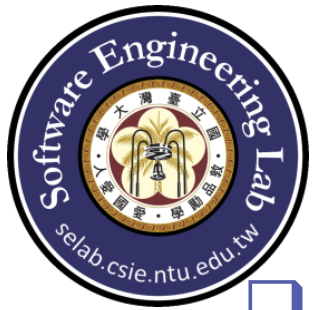
☐ Project Monitoring and Control

- Monitor project progress based on WBS
- Control action items generated from WBS



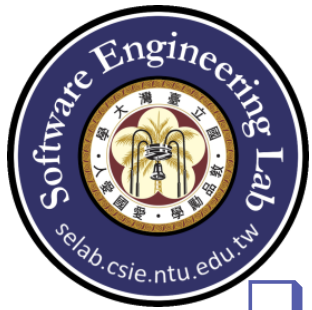
What is WBS?

- ❑ Work Breakdown Structure (WBS) is a **deliverable-oriented** grouping of project assignments that organizes and defines the scope of the project
 - Each descending level represents further detail; smaller and more manageable pieces
 - Work products (deliverables) should also be explicitly described in the work package.
- ❑ WBS is a graphical picture of the **project hierarchy** with
- ❑ WBS was first introduced by DoD in 1957.



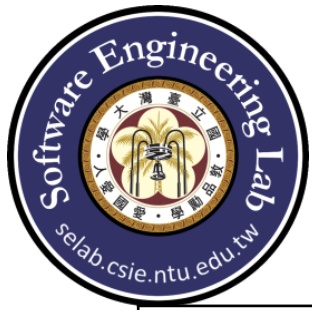
How to Divide the Work?

- ❑ Usually, first Level is commonly the same as the processes as the domain involved in the project, for example, software lifecycle in developing a software system.
- ❑ Each level of the WBS is a smaller segment of the level above
- ❑ Break down project into **tasks (lowest-level element)** that
 - Are realistically and confidently **estimable**
 - Can be **completed** under 80 person-hour rule of thumb, that is, 10 person-day (two weeks).
 - Have a meaningful conclusion and **deliverable**.
 - Work assignments, tasks, and action items usually refer to the same concept.



Work Package

- ❑ A task is described by a Work package, including
 - Task name
 - Description of work to be done
 - Preconditions for starting
 - Other Work packages that need to be completed before this task can be started
 - Duration
 - Required resources
 - Work product to be produced
 - Involved Risks
- ❑ Work package usually is the lowest level of WBS and corresponds to well defined work assignment for one worker for a week or two (80 person-hour).



Work Package Example

WBS #:	2.1	Task:	Develop Project Plan
Est. Level of Effort:	20 hrs	Owner:	Project Manager
Resources Needed:	Subject Matter Experts	Work Products:	Project Plan
Description of Task:	Development of a detailed project plan that lists all key resources, tasks, milestones, dependencies, and durations.		
Input:	<ul style="list-style-type: none"> Approved Project Charter 		
Dependencies:	<ul style="list-style-type: none"> Approval of Budget 		
Risk:	<ul style="list-style-type: none"> Changes to IT Apps plans and deliverables IT Apps implementation releases, which conflict with implementation 		



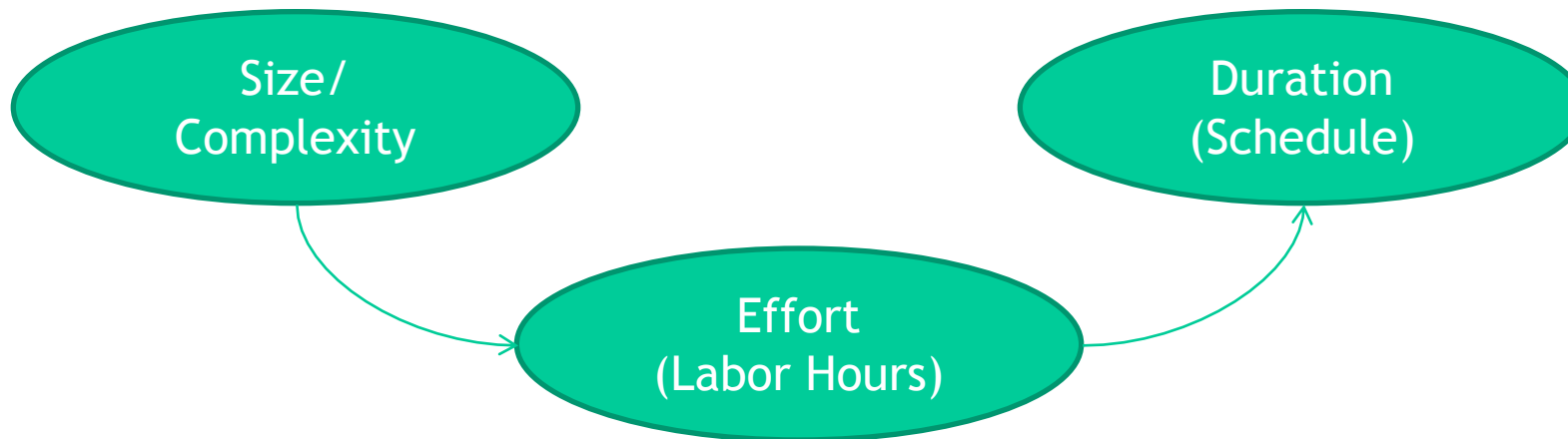
A WBS Example

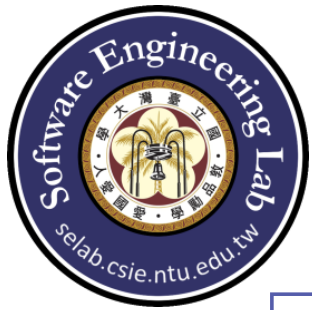
- Meeting Scheduler
+ Survey
- 專案規劃
- 發展 WBS
- 發展專案計畫書
- 需求分析
- 需求擷取
- 訂定目標
- 定義角色
+ 發展使用案例
- 發展Data Dictionary
- 發展系統架構
- 撰寫需求文件
- M1：需求文件產出
+ 系統設計
+ 系統實作
+ 系統測試
- M6：驗收測試



Project Estimation

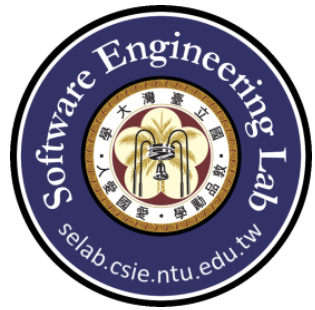
- ☐ Estimate **size** or complexity first
- ☐ Estimate required **effort** based on the size estimation
- ☐ Estimate required **duration** based on the effort estimation





Planning Poker

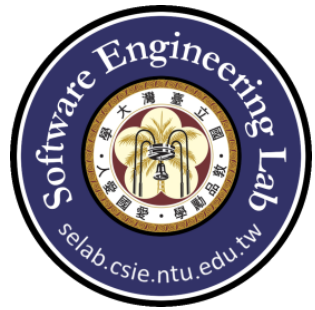
- ❑ WHO: participants in planning poker include all developers on a team.
- ❑ HOW:
 - For each task, task owners answer any questions that the estimators have.
 - Each estimator write down his/her estimate on a card.
 - When every estimator has made a decision, all cards are simultaneously turned and shown.
 - The high and low estimators explain their estimates.
 - If the estimates do not converge, repeat the process until they do.



WBS with Estimation

名稱	工時
[-] Meeting Scheduler	993
[+] Survey	60
[-] 專案規劃	30
發展 WBS	10
發展專案計畫書	20
[-] 需求分析	338
需求擷取	25
訂定目標	20
定義角色	15
[+] 發展使用案例	166
發展Data Dictionary	21
發展系統架構	21
撰寫需求文件	70
M1：需求文件產出	
[+] 系統設計	257
[+] 系統實作	210
[+] 系統測試	95
M6：驗收測試	

Effort Estimation



WBS with Schedule

名稱	工時	期間	起始日期	結束日期
[-] Meeting Scheduler	993	304	2011/10/18	2012/12/15
[-] Survey	60	30	2011/10/18	2011/11/29
Goal-driven	25	5	2011/11/22	2011/11/29
Meeting Scheduler Spec.	20	4	2011/10/18	2011/10/22
現有Meeting Scheduler系統	15	5	2011/10/24	2011/10/29
[-] 專案規劃	30	285	2011/11/14	2012/12/15
發展WBS	10	12	2011/11/14	2011/11/30
發展專案計畫書	20	272	2011/12/1	2012/12/15
[-] 需求分析	338	42	2011/10/24	2011/12/21
需求擷取	25	5	2011/10/24	2011/10/29
訂定目標	20	4	2011/11/29	2011/12/3
定義角色	15	3	2011/10/24	2011/10/27
+ 發展使用案例	166	28	2011/11/3	2011/12/13
發展Data Dictionary	21	21	2011/11/14	2011/12/13
發展系統架構	21	21	2011/11/14	2011/12/13
撰寫需求文件	70	14	2011/11/29	2011/12/17
M1：需求文件產出		1	2011/12/20	2011/12/21

Task Schedule



WBS with Assigned Responsibility

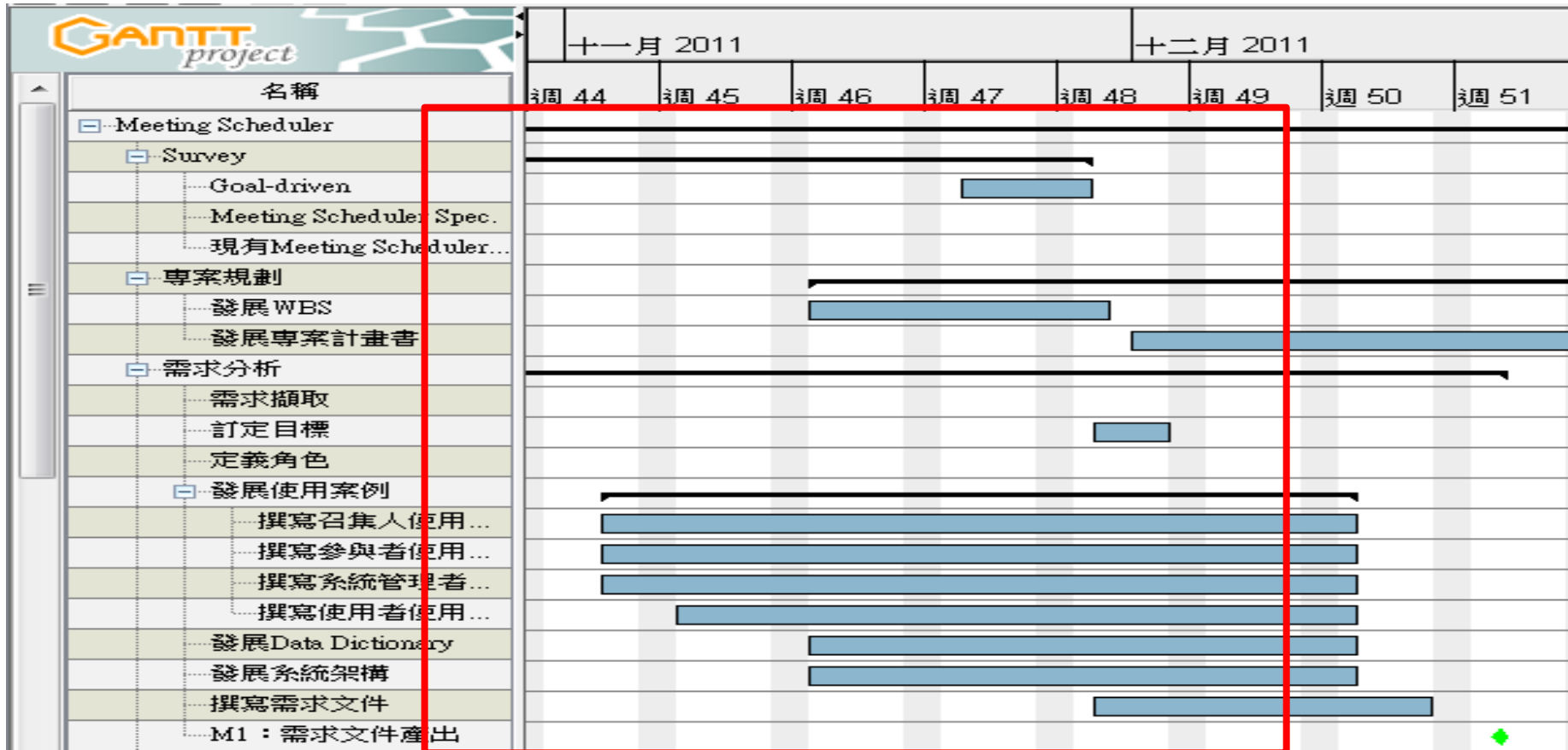
名稱	工時	期間	起始日期	結束日期	協調者
Meeting Scheduler	993	304	2011/10/18	2012/12/15	吳彥諄
Survey	60	30	2011/10/18	2011/11/29	吳彥諄
Goal-driven	25	5	2011/11/22	2011/11/29	吳彥諄
Meeting Scheduler Spec.	20	4	2011/10/18	2011/10/22	吳彥諄
現有Meeting Scheduler...	15	5	2011/10/24	2011/10/29	鄭聖翰, 洪東昇
專案規劃	30	285	2011/11/14	2012/12/15	陳石佳
發展WBS	10	12	2011/11/14	2011/11/30	陳石佳
發展專案計畫書	20	272	2011/12/1	2012/12/15	陳石佳
需求分析	338	42	2011/10/24	2011/12/21	吳彥諄
需求擷取	25	5	2011/10/24	2011/10/29	吳彥諄
訂定目標	20	4	2011/11/29	2011/12/3	吳彥諄
定義角色	15	3	2011/10/24	2011/10/27	吳彥諄
發展使用案例	166	28	2011/11/3	2011/12/13	吳彥諄
撰寫召集人使用...	56	28	2011/11/3	2011/12/13	吳彥諄, 丘偉廷
撰寫參與者使用...	56	28	2011/11/3	2011/12/13	鄭聖翰, 洪東昇
撰寫系統管理者...	28	28	2011/11/3	2011/12/13	陳石佳
撰寫使用者使用...	26	26	2011/11/7	2011/12/13	丘偉廷
發展Data Dictionary	21	21	2011/11/14	2011/12/13	鄭聖翰
發展系統架構	21	21	2011/11/14	2011/12/13	吳彥諄
撰寫需求文件	70	14	2011/11/29	2011/12/17	吳彥諄
M1：需求文件產出		1	2011/12/20	2011/12/21	

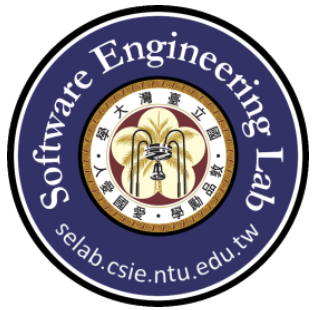
Responsibility



Gantt Chart

- Gantt Charts is used to visualize task dependency, schedule and responsibility.





Project Monitoring and Control

- ❑ The project manager should monitor actual performance and progress of the project against the project plan (WBS is the core)
 - Progress review
 - Milestone review



Progress Review

- ❑ **Periodically** review the project's progress, performance, and issues.
 - Regularly communicate status on assigned activities and work products to relevant stakeholders.
 - Review the results of collecting and analyzing measures for controlling the project.
 - Identify and document significant issues and deviations from the plan.
 - Document change requests.
 - **Track action items to closure.**



Milestone Review

- Review the accomplishments and results of the project at selected project milestones.
 - Conduct reviews at meaningful points in the project's schedule, such as the completion of selected stages, with relevant stakeholders.
 - Review the commitments, plan, status, and risks of the project.
- ❑ Milestones can be event based or calendar based.
 - If the duration between two event-based milestones is too long, calendar-based milestones can be inserted to enhance the effect of project monitoring.



Meeting Minutes

- ☐ Meeting Location
- ☐ Meeting Start Time and End Time
- ☐ Attendance
- ☐ Agenda: Including **Issues** and risks
- ☐ Action Items
- ☐ Decisions Made
- ☐ Next Meeting



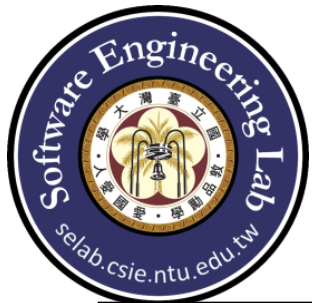
Issue

- ❑ Issues are major questions to be resolved
- ❑ Examples of issues to be gathered include the following:
 - Issues discovered when performing technical reviews, verification, and validation
 - Significant deviations in project planning parameters from estimates in the project plan
 - Commitments (either internal or external) that have not been satisfied
 - Significant changes in risk status
- ❑ Can be managed by Issue Tracking System
 - BugZilla, Trac, Mantis, etc.



Action Item

- ❑ Action Item: a task assigned to a person to be done by a certain time
 - What?, Who?, When?
 - Heuristics for Duration: be done within one week or two weeks
 - Generated from WBS or raised in the progress review meeting
 - Including corrective actions to address issues
- ❑ Action items should be tracked by the project manager



Action Item Tracking

Action Item 後續處理項目↕					
編號↕	處理動作↕	負責人員↕	處理期限↕	狀態↕	備註↕
1	Meeting Scheduler Spec. Survey↕	吳彥諄↕	2011/10/22↕	Closed ↓ 10/22↕	↕
2	現有 Meeting Scheduler 系統 Survey↕	鄭聖翰 陳石佳↕	2011/10/29↕	Closed ↓ 10/29↕	↕
3	發展 WBS↕	洪東昇↕	2011/11/30↕	Closed ↓ 11/30↕	↕
4	發展專案計畫書↕	洪東昇↕	2011/12/15↕	Closed ↓ 12/15↕	↕
5	寄出公司參訪感謝函及簡報↕	陳石佳↕	2011/12/29↕	ongoing↕	↕
6	企業參訪投影片製作↕	全體人員↕	2011/12/26↕	Closed ↓ 12/26↕	↕
7	編寫追蹤矩陣↕	鄭聖翰↕	2011/12/19↕	Closed ↓ 12/19↕	預計於 12/19 晚上整合完畢並審查↕
8	Goal-Driven Use Case 召集人、使用者 撰寫↕	丘偉廷↓ 吳彥諄↕	2011/12/12↕	Closed ↓ 12/12↕	↕

From
WBS

Raised in
Meeting