

# Life Cycle Plan (LCP)

## LEMA Pilot School Integrated Family Accountability System



### **PROJECT TITLE**

LEMA FAMILY ACCOUNTABILITY SYSTEM

### **TEAM NO**

#04

### **TEAM MEMBERS & ROLES**

NAME	ROLES
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12/05/2011

# Version History

Date	Author	Version	Changes made	Rationale
09/28/11	Teawon Han / Xiali Ma / Ziming Wei	1.1	<ul style="list-style-type: none"> <li>Denote skills of each roles in responsibility section</li> </ul>	<ul style="list-style-type: none"> <li>Initial draft for use with Project detail plan (who does what)</li> </ul>
09/30/11	Teawon Han	1.2	<ul style="list-style-type: none"> <li>Review format of document and update history section.</li> </ul>	<ul style="list-style-type: none"> <li>Update report format by using consistence terms and expressions.</li> </ul>
10/05/11	Xiaoli Ma	1.3	<ul style="list-style-type: none"> <li>Review format of document and update history sections.</li> </ul>	<ul style="list-style-type: none"> <li>Update report format by document of the project</li> </ul>
10/07/11	Xiaoli Ma	2.1	<ul style="list-style-type: none"> <li>Review format of document and update history sections. Change the table numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Update report format by document of the project</li> </ul>
10/12/11	Xiaoli Ma	2.2	<ul style="list-style-type: none"> <li>Review format of document and finish all sections</li> </ul>	<ul style="list-style-type: none"> <li>Version 2.2 used for Draft FC package in foundation phase.</li> </ul>
10/23/11	Ying Yang	2.3	<ul style="list-style-type: none"> <li>Added new module to COCOMOII estimation</li> <li>Changed SLOC estimation of several modules</li> <li>Edited rationales for all modules' cost driver</li> <li>Review format of document and updating some sections</li> <li>Added new team member's skills and responsibility in section 3.2 and 3.3</li> </ul>	<ul style="list-style-type: none"> <li>After discussion with team12 we decided to add a module to our COCOMOII representing data exchange/response with team12</li> <li>The estimated effort was way too low indicating there must be something wrong with our estimation</li> <li>Rationales given previously are not precise and suitable</li> <li>A new team member has joined the team</li> </ul>
10/24/11	Xiaoli Ma/ Ying Yang	2.3	<ul style="list-style-type: none"> <li>Review the document and fixes the bugs in all sections</li> </ul>	<ul style="list-style-type: none"> <li>Version 2.3 used for FC package in foundation phase.</li> </ul>
11/3/11	Ying Yang	3.1	<ul style="list-style-type: none"> <li>Edited the estimation section – changed some module names along with some rationales</li> <li>replacing estimation tool with COTIPMO</li> </ul>	<ul style="list-style-type: none"> <li>We're using COTIPMO for project life cycle estimation from this point on</li> <li>Client's requirements changed so we had to add new modules and modify previous modules</li> </ul>
11/7/11	Xiaoli Ma	3.1	<ul style="list-style-type: none"> <li>Review the document and fixed some bugs</li> </ul>	<ul style="list-style-type: none"> <li>Some previous bugs have been reopened and need to be fixed</li> </ul>

Date	Author	Version	Changes made	Rationale
11/16/11	Ying Yang	3.1	<ul style="list-style-type: none"> <li>Fix remaining bugs and the sections mentioned in TA's feedback for LCP:               <ol style="list-style-type: none"> <li>Redo most of the rationales</li> <li>Added new team members responsibilities</li> <li>Edited the project strategy</li> <li>Added some artifacts to the project deliverable section</li> <li>Edited the tools used in project</li> <li>Fixed the COTIPMO estimation to a reasonable amount</li> <li>Fixed some formatting issues</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Got feedback of previous version from TA. Lots of sections need to be fixed.</li> </ul>
12/05/11	Ying Yang	3.2	<ul style="list-style-type: none"> <li>Fix the problems mentioned in TA's feedback from DCR ARB</li> <li>Fixed the table contents</li> </ul>	<ul style="list-style-type: none"> <li>There are a couple minor problems with project plan</li> </ul>

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# 1. Introduction

## 1.1 Purpose of the LCP

Life cycle plan is a document to record and predict process of development. Basically, this artifact organizes answers to the most common questions about a project or activity: why? Whereas? What? When? Who? Where? How and how much? All these should be planned and recorded in the LCP.

➤ **Management:**

- In the spiral model, development iterations are important to keep whole process moving forward. To guarantee the success, we need to identify milestone in order to make risk assessment and management and list the tasks to be performed, the product to be produced, dates by which all of these could be finished.
- In each phase, every role in the team should be responsible for artifacts and tasks. Team members' skills, tasks, responsibilities must be identified in the LCP previously.
- Estimate project effort and schedule using COTIPMO for next phase.
- As project evolves, there might be some changes to the resources or milestones of the project. Because of that, we need to re-assess the life cycle plan, make sure it reflects the current project status.

➤ **Plan:**

- To plan for development activities in each iteration.
- To assess what you have planned in the end of the iteration and provide feedback for the next iteration plan.
- To plan tasks within a schedule.

## 1.2 Status of the LCP

This version 3.1 LCP is for the Draft DC package, documented at the early foundation phase. The major changes from the version before are:

- Updated the estimation section, replacing COCOMOII estimation with COTIPMO estimation.
- Modified some of the table's look
- Fixed the bugs reported by IIV&V.

## 1.3 Assumptions

- Hold team discussion 1 time every week.
- The duration of the project is 24 weeks, which are 12 weeks in Fall 2011 and 12 weeks in Spring 2012.

## 2. Milestones and Products

### Abbreviation Legend:

- Operational Concept Description (OCD)
- Prototype Report (PRO)
- System and Software Requirements Description (SSRD)
- System and Software Architecture Description (SSAD)
- Life Cycle Plan (LCP)
- Feasibility Evidence Description (FED)
- Supporting Information Document (SID)

## 2.1 Overall Strategy

### Exploration phase

**Duration:** 9/9/2011 - 10/3/11

**Concept:** We identify project operational concept, system and software requirement, system and software architecture, and life-cycle plan. These phases prioritize the capabilities, conduct investment and feasibility analysis, and implement the software prototype.

**Deliverables:** Valuation Commitment Package

**Milestone:** Valuation Commitment Review

**Strategy:** One Incremental Commitment Cycle

### Valuation phase:

**Duration:** 10/4/2011 – 10/24/2011

**Concept:** Identified the initial prototype, system and software architecture, system and software requirements; Made progress on operational concepts, life cycle plan, and feasibility evidence. This phase prioritize prototype, system and software requirements and feasibility analysis.

**Deliverables:** Core Foundation Commitment Package, Draft Foundation Commitment Package, Foundation Commitment Package

**Milestone:** Architecture Board Review-Foundation Commitment Review

**Strategy:** At least one Incremental Commitment Cycle, win-win negotiation, prototype initialization

### Foundation phase:

**Duration:** 10/25/2011 - 12/9/2011

**Concept:**

- Need to keep risks assessment, client interaction, and project plan every week.
- Hold ARB-FCR. Refined all document for FCP.
- All COTS and NDI, like database, CMS, implemented in the system should be analyzed and fixed.
- Provide NDI report to client and negotiate with Client.



- Main tasks: Assess project status, prototyping, manage project quality, acquire NDI components and analyze NDI interoperability for NDI/NCS project
- Choose develop tools, analyze compatibility of each tools. Decide development environment.
- Assign tasks and roles to team member in development phase, find if there is requirement for new team members in development phase;
- When meet some issues, we need to negotiate with clients, meanwhile update WikiWinWin and its report.

**Deliverables:**

- Draft Development Commitment Package
- Development Commitment Package

**Milestone:**

- Architecture Board Review-Development Commitment Review

**Strategy:** At least one Incremental Commitment Cycle, prototype development

▪ **Rebaselined Foundations phase**

**Duration:** 1/9/12- 2/11/12

**Concept:** Rebaseline the project status, prepare for the actual development phase. New team members will join the team and the prototype will be rebaselined. New plan for 577b project will be made including transition strategy, key risk items. Prioritize the requirements.

**Deliverables:** Rebaselined Foundations Commitment Package

**Milestone:** Rebaselined Foundations Commitment Review

**Strategy:** Review, reassessment

▪ **Development phase(construction iteration):**

**Duration:** 2/15/12- 4/13/12

**Concept:**

- Construct the new LEMA intranet and mirror site
- Keep interaction with clients, get feedbacks, and guarantee the system will achieve core capabilities.
- Implement system architecture and main functionalities designed in prototype.
- Glue coding should be finished in this phase, and then start testing.
- A system and its mirror system should be built up at the end of this phase.
- Populate the database with existing data

**Deliverables:** Rebaselined Development Commitment Package

**Milestones:**

- Core Capability Drive through

**Strategy:** One Incremental Commitment Cycle

▪ **Development phase(transition iteration):**

**Duration:** 4/13/12- 5/6/12

**Concept:**

- Construct the new LEMA intranet and mirror site
- Keep interaction with clients, get feedbacks, and guarantee the system will achieve core capabilities.
- Implement system architecture and main functionalities designed in prototype.
- Glue coding should be finished in this phase, and then start testing.
- A system and its mirror system should be built up at the end of this phase.
- Installation and transition of the system

**Deliverables:** Operation Commitment Package**Milestones:**

- Transition Readiness Review
- Operational Commitment Review

**Strategy:** One Incremental Commitment Cycle

## 2.2 Project Deliverables

### 2.2.1 Exploration Phase

**Table 1: Artifacts Deliverables in Exploration Phase**

Artifact	Due date	Format	Medium
Client Interaction Report	09/21/2011	.doc, .pdf	Soft copy
Valuation Commitment Package <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD) Early Section</li> <li>• Life Cycle Plan (LCP) Early Section</li> <li>• Feasibility Evidence Description (FED) Early Section</li> </ul>	09/28/2011	.doc, .pdf	Soft copy
Evaluation of Valuation Commitment Package	10/03/2011	.xls	Soft copy
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	.mpp, .pdf	Soft copy
Progress Report	Every Wednesday	.xls	Soft copy
Risk Analysis	Every Wednesday	Text	DART system

## 2.2.2 Valuation Phase

**Table 2: Artifact deliverable in Valuation Phase**

<b>Artifact</b>	<b>Due date</b>	<b>Format</b>	<b>Medium</b>
Initial Prototype Report	10/04/2011	.doc, .pdf	soft copy
Evaluation of Initial Prototype	10/07/2011	.doc	soft copy
Client Meeting Notes	10/06/2011		
Core Foundations Commitment Package <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD): All sections</li> <li>• Life Cycle Plan (LCP) : Sections 1, 3.3</li> <li>• Feasibility Evidence Description (FED) : Sections 1, 5</li> <li>• Prototype (PRO): latest prototype</li> <li>• System and Software Architecture Description (SSAD) : Sections 1, 2.1.1-2.1.3</li> <li>• Supporting Information Document (SID): All sections</li> </ul>	10/07/2011	.doc, .pdf	soft copy
Evaluation of Core FC Package	10/10/2011	.xls	soft copy
Draft Foundations Commitment Package <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD)</li> <li>• Life Cycle Plan (LCP)</li> <li>• Feasibility Evidence Description (FED) : section 1-5</li> <li>• Prototype (PRO)</li> <li>• System and Software Architecture Description (SSAD)</li> <li>• Win Conditions Prioritization</li> <li>• Supporting Information Document (SID)</li> </ul>	10/14/2011	.doc, .pdf	soft copy
Evaluation of Draft FC Package	10/17/2011	.xls	soft copy
Foundations Commitment Package: <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD)</li> <li>• Life Cycle Plan (LCP)</li> <li>• Feasibility Evidence Description (FED)</li> <li>• Prototype (PRO)</li> <li>• System and Software Architecture Description (SSAD)</li> <li>• Win Conditions Prioritization</li> <li>• Supporting Information Document (SID)</li> <li>• Quality Management Plan (QMP)</li> <li>• UML Model</li> </ul>	10/24/2011	.doc, .pdf	soft copy
QMP #1	10/24/2011	.doc, .pdf	soft copy

Effort Report	Every Monday	Text	ER system
Project Plan	Every Wednesday	.mpp	Soft copy
Progress Report	Every Wednesday	.xls	Soft copy
Risk Analysis	Every Wednesday	Text	DART system

## 2.2.3 Foundations Phase

**Table 3: Artifact deliverable in Foundations Phase**

<b>Artifact</b>	<b>Due date</b>	<b>Format</b>	<b>Medium</b>
Evaluation of FC Package	11/01/2011	.xls	soft copy
NDI/NCS Integration Analysis	11/14/2011	.doc	soft copy
QMP #2	11/14/2011	.doc, .pdf	soft copy
Draft Development Commitment Package <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD)</li> <li>• Life Cycle Plan (LCP)</li> <li>• Feasibility Evidence Description (FED)</li> <li>• Prototype (PRO)</li> <li>• System and Software Architecture Description (SSAD)</li> <li>• Win Conditions Prioritization</li> <li>• Supporting Information Document (SID)</li> <li>• Quality Management Plan</li> <li>• Test Plan (TP)</li> <li>• Iteration Plan (IP)</li> <li>• Acceptance Test Plan (ATP)</li> </ul>	11/21/2011	.doc, .pdf	soft copy
Evaluation of Draft DC Package	11/28/2011	.xls	soft copy
Development Commitment Package <ul style="list-style-type: none"> <li>• Operational Concept Description (OCD)</li> <li>• System and Software Requirements Definition (SSRD)</li> <li>• System and Software Architecture Description (SSAD) + UML</li> <li>• Life Cycle Plan (LCP)</li> <li>• Feasibility Evidence Description (FED)</li> <li>• Supporting Information Document</li> </ul>	12/5/2011	.doc, .pdf	soft copy

(SID)			
<ul style="list-style-type: none"> <li>• Quality Management Plan (QMP)</li> <li>• Test Plan and Cases (TPC)</li> <li>• Transition Plan (TP)</li> <li>• Iteration Plan (IP)</li> </ul>			
Evaluation of DC Package	12/5/2011	.xls	soft copy
Effort Report	Every Monday	Text	ER system
Project Plan	Every Wednesday	.mpp	Soft copy
Progress Report	Every Wednesday	.xls	Soft copy
Risk Analysis	Every Wednesday	Text	DART system

## 2.2.4 Rebaselined Development Phase

**Table 4: Artifact deliverable in Rebaselined Development Phase**

Artifact	Due date	Format	Medium
Draft Rebaselined Development Commitment (RDC) Package	02/06/2012	.doc, .pdf	Soft copy
Evaluation of Draft RDC package	02/13/2012	.xls	Soft copy
Rebaselined Development Commitment Package <ul style="list-style-type: none"> <li>• OCD</li> <li>• SSRD</li> <li>• SSAD+RSM</li> <li>• LCP</li> <li>• FED</li> <li>• SID</li> <li>• QMP</li> </ul>	02/14/2012	.doc, .pdf	Soft Copy
Progress Report	Every Wednesday	.xls	Soft copy
Project Plan	Every Wednesday	.mpp	Soft copy

## 2.2.5 Development Phase

**Table 5: Artifact deliverable in Development Phase**

<b>Artifact</b>	<b>Due date</b>	<b>Format</b>	<b>Medium</b>
Initial Operational Capability (IOC) working set#1  <ul style="list-style-type: none"> <li>• Develop the Test Procedure and Results</li> <li>• Develop the Iteration Assessment report</li> <li>• Finalize the Test plan and Cases</li> <li>• Finalize the Iteration Plan (IP)</li> <li>• Finalize the Transition Plan</li> <li>• Correct the RDC Package</li> </ul>	3/30/2012	.doc, .pdf	Soft copy
Core Capability Drive-through report	4/4/2012	.doc, .pdf, .est, .xls	Soft copy
Development Commitment Package	5/1/2012	.doc, .pdf	Soft copy
Draft Transition Package  <ul style="list-style-type: none"> <li>• Transition Plan (TP)</li> <li>• User Manual (UM)</li> <li>• Support Plan (SP)</li> <li>• Training Materials</li> <li>• Regression Test Package (RTP)</li> <li>• Packaged Tools and Procedure (PTP)</li> </ul>	4/9/2012	.doc, .pdf	Soft copy
Initial Operational Capability (IOC) working set#n	4/27/12		

Effort Report	Every Monday	Text	ER system
Project Plan	Every Wednesday	.mpp	Soft copy
Progress Report	Every Wednesday	.xls	Soft copy
Risk Analysis	Every Wednesday	Text	DART system

## 3. Responsibilities

### 3.1 Project-specific stakeholder's responsibilities

**Table 6: Project-specific stakeholder's responsibilities**

Stakeholder	Type	Responsibilities
All Stakeholders	All Stakeholders	<ul style="list-style-type: none"> <li>• Participate in the WinWin negotiation</li> <li>• Collaborate and responsible for assigned tasks</li> <li>• Commit to the agreed project progress</li> </ul>
LEMA School Teachers	Users	<ul style="list-style-type: none"> <li>• Explain current net workflow and context</li> <li>• Provide requirements and win conditions in exploration phase</li> <li>• Express interests or win conditions</li> <li>• Provide project-related information and feedback</li> <li>• Review and test prototypes and the product and provide feedback as appropriate</li> <li>• Test and deploy the product in operational environment</li> </ul>
LEMA School Teachers	Client	<ul style="list-style-type: none"> <li>• Prepare for site visit, provide support and collaboration to the development team</li> <li>• Articulate win conditions and operation concept</li> <li>• Track system progress</li> <li>• Coordinate with user, maintainer and developer</li> <li>• Provide information and feedback, review and test the product</li> <li>• Test and deploy the product in operational environment</li> <li>• Support system's transition</li> <li>• Receive training for the new system, provide training for regular users</li> </ul>
LEMA School IT Department	Maintainer	<ul style="list-style-type: none"> <li>• Express interests or win conditions</li> <li>• Provide information and show current system environment</li> <li>• Provide information and feedback, review and test the product</li> <li>• Prepare operational environment</li> <li>• Test and deploy the product in operational environment</li> <li>• Receive training for the new system, provide training for users</li> <li>• Maintain the system</li> </ul>
Team#4 Students	Developer / Builder	<ul style="list-style-type: none"> <li>• Collect all stakeholders' win conditions</li> <li>• Gather all project-related information and transform into requirement specification, operational concepts, and initial architecture</li> <li>• Initiate and complete Win-Win negotiation , all reviews, and weekly meeting</li> <li>• Develop prototype, project plan and investment analysis,</li> <li>• Analyze current system environment, identify project risk, analyze project feasibility and mitigate</li> </ul>



		risks <ul style="list-style-type: none"> <li>• Update project progress with client</li> <li>• Refine architecture, prototype, and design</li> <li>• Develop and project artifacts to meet milestone requirements</li> <li>• Plan and conduct testing</li> <li>• Develop the system based on the agreed architecture</li> <li>• Perform system transition, provide training for client and maintainer</li> <li>• Provide product support in operational environment to customer</li> </ul>
Team#4 students	IIV&V	<ul style="list-style-type: none"> <li>• Facilitate in WinWin negotiation</li> <li>• Ensure the quality of the project</li> <li>• Review and provide feedback to the development team</li> <li>• Plan and conduct testing</li> </ul>

## 3.2 Responsibilities by Phase

Table 7: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	Valuation	Foundations	Development-Construction Iteration	Development-Transition Iteration
<b>Name:</b> Teawon Han/ Project Manager	<b>Primary Responsibility</b> 1.Detail and record project plan 2.Assess and Plans to Mitigate Risks <b>Secondary Responsibility</b> 1. Assign tasks and resource to developers 2. Track clients' notes	<b>Primary Responsibility</b> 1. Explore NDI components 2. Detail and record project plan 3. Assess and plans to mitigate risks 4. Provide FED <b>Secondary Responsibility</b> 1. Assign tasks and resource to developers	<b>Primary Responsibility</b> 1.Assess Feasibility Evidence 2.Detail and record project plan <b>Secondary Responsibility</b> 1.Assign tasks and resource to developers 2.Give response to Evaluation	<b>Primary Responsibility</b> None <b>Secondary Responsibility</b> None	<b>Primary Responsibility</b> None <b>Secondary Responsibility</b> None

		<ol style="list-style-type: none"> <li>Track clients' notes</li> <li>Give response to Evaluation</li> </ol>			
<b>Name:</b> Zhen Huang/ Feasibility Analyst/Builder	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>Progress Report</li> <li>Project Plan</li> <li>Detail Project Plan</li> <li>Record Project Progress</li> <li>Feasibility Evidence Description</li> <li>Assess and Plans to Mitigate Risks</li> </ul> <b>Secondary Responsibility</b> none	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>Progress Report</li> <li>Project Plan</li> <li>Detail Project Plan</li> <li>Record Project Progress</li> <li>Feasibility Evidence Description</li> <li>Analyze Business Case</li> <li>Assess and Plans to Mitigate Risks</li> <li>Explore Alternatives</li> <li>Provide Feasibility Evidence for Architecture Agile project</li> </ul> <b>Secondary Responsibility</b> <ul style="list-style-type: none"> <li>Provide Architecture Feasibility Evidence</li> <li>Provide Process Feasibility Evidence</li> </ul>	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>Progress Report</li> <li>Project Plan</li> <li>Detail Project Plan</li> <li>Record Project Progress</li> <li>Feasibility Evidence Description</li> <li>Assess Feasibility Evidence</li> </ul> <b>Secondary Responsibility</b> None	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>Implement the System</li> <li>Populate the database</li> </ul> <b>Secondary Responsibility</b> <ul style="list-style-type: none"> <li>Assess Traceability</li> <li>Matrix Assess risks</li> <li>Record individual effort</li> </ul>	<b>Primary Responsibility</b> Provide training, system transition
<b>Name:</b> Ziming Wei/ Operational Concept Engineer	<b>Primary Responsibility</b> <ol style="list-style-type: none"> <li>Analyze current system</li> <li>Identify operational concepts.</li> </ol> <b>Secondary Responsibility</b> Assess risks	<b>Primary Responsibility</b> <ol style="list-style-type: none"> <li>Identify OC&amp;P</li> <li>Define Operational Concepts in LADOT intranet, OCD</li> <li>Explore</li> </ol>	<b>Primary Responsibility</b> <ol style="list-style-type: none"> <li>Analyze and Assess NDI</li> <li></li> </ol> <b>Secondary Responsibility</b> <ol style="list-style-type: none"> <li>Give response to Evaluation</li> </ol>	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Secondary Responsibility</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Primary Responsibility</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Secondary Responsibility</b> <ul style="list-style-type: none"> <li>None</li> </ul>

		NDI componen ts <b>Secondary          Responsibility</b> 1. Assess risks 2. Give response to Evaluatio n			
<b>Name:</b> Xiaoli Ma/ Life Cycle Planner	<b>Primary          Responsibility</b> 1. Identify Responsibi lities and Skills 2. Analyze current system <b>Secondary          Responsibility</b> 1. Detail Project Plan 2. Update Wikiwinwi n	<b>Primary          Responsibility</b> 1. Plan for project life cycle, LCP 2. Set up WinWin negotiatio n context <b>Secondary          Responsibility</b> 1. Detail project plan 2. Give response to Evaluatio n	<b>Primary          Responsibility</b> 1. Assess Life Cycle Content 2. Estimate resource and effort <b>Secondary          Responsibility</b> 1. Detail project plan 2. Give response to Evaluation	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None
<b>Name:</b> Ian Williams/ Requirements Engineer	<b>Primary          Responsibility</b> 1. Analyze current system 2. Analyze requiremen ts <b>Secondary          Responsibility</b> Assess risks	<b>Primary          Responsibility</b> 1. Analyze win conditions <b>Secondary          Responsibility</b> 1. Assess risks 2. Update Wikiwinwin	<b>Primary          Responsibility</b> 1. Detail Product Requirements <b>Secondary          Responsibility</b> 1. Assess risks 2. Track client's feedback 3. Update Wikiwinwi n	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None
<b>Name:</b> Kimberly Krause/ IIV&V / System Requirements Engineer	<b>Primary          Responsibility</b> 1. Facilitate winwin negotiation <b>Secondary          Responsibility</b> Assess risk	<b>Primary          Responsibility</b> 1. Verify and validate work products 2. Report artifacts	<b>Primary          Responsibility</b> 1. Evaluate work products <b>Secondary          Responsibility</b> 1. Assess risks	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None	<b>Primary          Responsibility</b> • None <b>Secondary          Responsibility</b> • None

		review <b>Secondary Responsibility</b> Assess risks			
<b>Name:</b> Ying Yang/Life Cycle Planner	<b>Primary Responsibility</b> 1. Identify Responsibilities and Skills 2. Analyze current system <b>Secondary Responsibility</b> 1. Detail Project Plan 2. Update Wikiwinwin	<b>Primary Responsibility</b> 3. Plan for project life cycle, LCP 4. Set up WinWin negotiation context <b>Secondary Responsibility</b> 3. Detail project plan Give response to Evaluation	<b>Primary Responsibility</b> 3. Assess Life Cycle Content 4. Estimate resource and effort <b>Secondary Responsibility</b> 3. Detail project plan Give response to Evaluation	<b>Primary Responsibility</b> • None <b>Secondary Responsibility</b> • None	<b>Primary Responsibility</b> • None <b>Secondary Responsibility</b> • None
<b>New team member Name:</b> TBD Project Manager/ Builder				<b>Primary Responsibility</b> • Manage project and track the project progress <b>Secondary Responsibility</b> • Develop the actual system	<b>Primary Responsibility</b> • Provide system transition
<b>New team member Name:</b> TBD Tester				<b>Primary Responsibility</b> • Identify Test Plan • Identify test procedures • Perform testing • Record test results	<b>Primary Responsibility</b> • Provide system transition
<b>New team member Name:</b> TBD Builder/Trainer				<b>Primary Responsibility</b> Build the system  <b>Secondary Responsibility</b> Prepare Training Plan, Provide Training	<b>Primary Responsibility</b> • Provide training
<b>New team member Name:</b> TBD IIV&V/ Life Cycle Planner				<b>Primary Responsibility</b> • Assess risks • Assess Traceability Matrix • Identify test plan • verifying &	<b>Primary Responsibility</b> • Develop User Manual • Transition the system • Access traceability

				validation of products or deliverables	matrix
				<b>Secondary Responsibility</b> <ul style="list-style-type: none"> <li>•Assess Development Iteration</li> <li>•Detail Iteration Plan</li> <li>•Develop transition plan</li> </ul>	

### 3.3 Skills

Table 8 contains each of the roles in the LEMA project, the team member that will be fulfilling that role, and the skills that are necessary to be successful in that role.

**Table 8: Skills**

Team members	Role	Skills
Teawon Han (577a)	Project Manager / Builder	-Project Managing, C/C++, Java, Javascript, php, sql, MS project
New member (577b)		
Zhen Huang(577a/b)	Feasibility Analyst	- Project Managing, C/C++, Java, Javascript, sql, MS project
Ziming Wei (577a)	Operational Concept Engineer	- UML Modelling, C#/ASP.NET,C++, HTML,Javascript,PHP, SQL
New member (577b)	Programmer/Trainer	- PHP, C/C++, Java, Javascript, php, sql, MS project
Xiaoli Ma (577a)	Life cycle Planner	- Testing, WikiWinWin, C/C++/C#, SQL, Java
New member (577b)	Tester	- PHP, C/C++, Java, Javascript, php, sql, MS project, build test case, perform testing
Ian Williams (577a)	Requirement Engineer / Prototyper	- Testing, WikiWinWin, C#/ASP.NET,C++,Java, MySQL
Kimberly Krause (577a)	IIV&V, Systems Requirements Engineer	- S Quality management, Java, C#, SQL (some c/c++), Bugzilla
Ying Yang(577a)	Life cycle planner	- C/C++, Java, C#/ASP.NET, SQL

## 4. Approach

### 4.1 Monitoring and Control

- **Effort Report**  
Individual effort report indicates the number of hours used for tasks in recent week of everyone. This is to record everybody's contribution to the project.
- **Progress Report**  
This is to keep a track of performance of the development process for current week. It could help team to analyze the progress of project in past week as well as plan and adjust methods to mitigate risks and avoid defects.
- **Wiki System**  
Using WIKI to assess documents, get feedback from each team members. We could download and saw the documents updates by each member. The value of wiki is to help figure out what main problems we faced. This is guarantee the project is able to continue to next phase.
- **Client Meeting Note**  
Let client know how tasks finished and how much did the project proceed recently. After each meeting with clients, notes are organized and posted for all team members. This information is used to ensure that all team members remember decisions that were made which helps to keep project information accurate and consistent

#### 4.1.1 Closed Loop Feedback Control

Team meeting: 2 times every week. AT SSL or Leavey library discuss room. Use email and wiki to show individual works, team goals, risks, package requirements, etc.

Build up a wiki group to report somebody's work to others. It is also a useful way to upload and share files on time.

Wiki link: <http://lema-accountability.wikispaces.com/>

Use Skype to hold a team meeting, including DEN students.

#### 4.1.2 Reviews

- Review during the team meeting every time. Summarize previous work and analyze assessments from TA.
- Review given by IIV&V, reporting problems through Bugzilla and send E-mail to inform every assignee.
- Using Skype to hold an online meeting to discuss issues.

## 4.2 Methods, Tools and Facilities

<b>Tools</b>	<b>Usage</b>	<b>Provider</b>
Microsoft Word 2003	Creates documents for all artifacts	USC
Microsoft Project	Project managing and planning.	Microsoft
ER and iCard system	Keeps track of individual project effort	USC
Bugzilla	Report bugs and response to it	USC
My SQL	Database management	Open source download
Rational Software Modeler	Create system diagrams, class diagrams, etc for system architecture	USC
Wikispace team site	Share documents and publish individual comment/tasks within the team	WikiSpaces
COTIPMO	Project estimation, module assessment and effort estimation	USC

## Resources

Identify the following information in order to estimate the software cost:

- Team members: 7
- Project duration: 12 weeks in First Semester and 12 weeks in Second Semester
- Programming language used: PHP, MySQL, Apache

Project Estimates								Edit
Description:	LEMA School Project							
SCED:	HI							
Scale Factors:	15.52							
Total PM:	11.78							
Total Effort:	1793 hours							
Modules:	#	Name	Total SLOC	REVL	Adj. SLOC	EAF	PM	Equiv. Effort
	1	Attendance Data Input System	800	10	880	0.74	2.11	321 hrs
	2	Performance Report (grade / attendance)	800	10	880	1.10	3.13	476 hrs
	3	Grade data import system	400	5	420	0.57	0.78	119 hrs
	4	Notification System	400	5	420	0.63	0.86	131 hrs
	5	Resource Management	500	5	525	0.65	1.11	169 hrs
	6	System Management	600	5	630	0.74	1.51	230 hrs
	7	Data request processing system	600	5	630	1.12	2.28	347 hrs

The new module “Data Request Processing system” has been added to the estimation. It represents the module that processes data requests from the other separate system that another team is working on. The SLOC of each module has been modified and EAF has been modified as well based on each module’s specific features. Total PM is 11.78 which indicate that the project is doable within 24 weeks time period with a 7 team members’ team.

**Table 2: COTIPMO Scale Driver**

Scale Driver	Value	Rationale
PREC	Hi	The project is to develop a web-based application which has been done over and over again previously so the precedentedness is high.
FLEX	Low	The project has been specified by the descriptions that the client provides so the flexibility is low.
RESL	Hi	There will be risk analysis and resolution throughout the whole project so the RESL should be between high to xhi.
TEAM	Hi	We have a highly dedicating team; clients are easy to communicate with.
PMAT	Nom	Our team follows ICM guidelines carefully and there is no need to perform extra project management.



**Table 3: COTIPMO Cost Driver for Performance Report Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Nom	This module provides one of the most important functions in the whole system. However, the failure of this system will not cause financial loss but only inconveniences to users. Since the performance report might be generated everyday, the inconveniences caused by system failure can be huge. This cost driver is normal.
DATA	Nom	We will only have some performance data in database and for testing in this Module
DOCU	Nom	There will be only a moderate amount of documentations as the report is pretty self-explaining.
CPLX	Nom	Making the report has to take many elements into account, it's not difficult in general but the complexity of the report is a little bit complex.
RUSE	High	This module could be reused in future system. LEMA high school has another proposed project, the social media project, which also requires student performance report. This module can be reused across program.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is text and table, it won't use much storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and the whole team is working on capturing requirements and details of this module.
PCAP	Nom	This report module requires strong programming skills to implement and some of our team members lack of web-programming skills.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Low+50%	Some team members have general application experiences of web-based programming.
LTEX	Normal	4 of the team members are familiar with the web-based programming language.
PLEX	Normal	Team members have general ideas and experience of the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 11: COTIPMO Cost Driver for Notification System Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Very low	This module provides an extra function for teachers to send out text notifications to parents. It won't be used all the time and if it fails there will be no serious loss, so the reliability of this module should just be very low.
DATA	Low	There will be only a certain amount of data input for testing in this module.
DOCU	Nom	A moderate amount of documentations for this module will be suitable to the life cycle needs.
CPLX	Low	The complexity of making a text notification module from scratch is fairly high. Instead we need to implement a third party text notification service.
RUSE	Nom	This module could be reused across the project. Text messaging service can be used by the attendance module and performance report module for users to send out text messages to parents.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is plain text, it will take minimum amount of storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and the requirements are easy to capture for this module.
PCAP	Hi	Since we will be implementing a third party service, there will be very little programming for this module (possibly some glue code). The team members are capable of this particular part of programming.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Low	Most team members don't have applications experience of this kind of application.
LTEX	Normal	The only concern for this module is to integrate the third party service into the current under-developing system. Some of the team members have this kind of experience for more than 6 months.
PLEX	Nomal	Team members have general ideas and experience of the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 12: COTIPMO Cost Driver for Attendance Data Input System Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Nom	This module will be used to input data into database everyday so its reliability is important. If this module fails, there will be inconveniences recoverable losses but not financial losses.
DATA	Nom	There will be some data needed for testing for this module.
DOCU	Nom	A moderate amount of documentations for this module will be suitable to the life cycle needs.
CPLX	Nom	Designing the module is critical. It won't be too complex if the design of database is carefully done.
RUSE	Low	This module will not be reused in the current project or across project in the future.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is plain text, it will take minimum amount of storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	High	Analyst has pretty good skills and the whole team is working on capturing the requirements.
PCAP	High	Team members have good capability in programming especially the database programming.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Nom+50%	Team members have database application experience for more than 1 year in general.
LTEX	Nom+50%	We will be using SQL as the primary database programming language which most of the team members are comfortable with and have experience of database programming for more than 1 year.
PLEX	Nom	Team members have general ideas and experience of the platform.
TOOL	Nom	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 13: COTIPMO Cost Driver for System Management Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Low	This module provides functionality to maintain the system and it won't be used all the time. If it fails, there won't be financial loss and the inconveniences are easily recoverable.
DATA	Low	There will very small amount of data used to test this module.
DOCU	Nom	A good amount of documentations for this module will be suitable to the life cycle needs.
CPLX	Low	This module will have only a small amount of features to implement and it won't be complex.
RUSE	Low	This module will not be reused in the future or for cross current project since it's uniquely designed for managing this under-developing system.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is plain text, it will take minimum amount of storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and the whole team is working on capturing the requirements.
PCAP	Nom	Team members have good capability in general programming. Some of the team members are very capable of web-based programming while others are quick learner.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Low+50%	Some team members have general application experiences of web-based programming.
LTEX	Nom	For this module it will be mostly web-based programming and 4 of the team members are familiar with that.
PLEX	Nom	Team members have general ideas and experience of the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 14: COTIPMO Cost Driver for Resource Management Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Very low	This module provides functionality to maintain all the resources school provides for students. It is sort of an add-on feature of the system. It is supposed to provide quick and easy access to the existing resources. If fails it won't cause any serious loss.
DATA	Low	There will very small amount of data used to test this module.
DOCU	Nom	A moderate amount of documentations for this module will be suitable to the life cycle needs.
CPLX	Low	This module will have only a small amount of features to implement and it won't be complex.
RUSE	Low+50%	This module could be used by another LEMA high school social media project.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is plain text, it will take minimum amount of storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and requirements for this module are easy to capture.
PCAP	Nom	Team members have good capability in general programming. Some of the team members are very capable of web-based programming while others are quick learner.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Low+50%	Some team members don't have applications experience, but this module doesn't require a huge amount of application experience anyway.
LTEX	Nom	For this module it will be mostly web-based programming and 4 of the team members are familiar with that.
PLEX	Nom	Team members have general ideas and experience of the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 15: COTIPMO Cost Driver for Data Request Processing System Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Nom	This module provides data request processing function for the other system that's under developing by another team. If this service is down, other team's system will not be able to function properly. This will cause moderate recoverable losses.
DATA	Nom+50%	This module will be handling request of student information, teacher information and course information. The amount of test data would be higher than other module.
DOCU	High	This module needs large amount of documentations as it has to provide API. High amount of documentations would benefit the project life cycle.
CPLX	low	This module will be using rest service which is fairly easy to implement.
RUSE	High	This module can be reused across program for the other two projects of LEMA high school for current and future purpose of exchanging data.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is text and table, it won't use much storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and the whole team is working on capturing requirements and details of this module.
PCAP	Nom+50%	The team is pretty capable of general programming and capable of learning new programming language. Some of the team members might not have web-programming experience but this module is fairly easy to complete.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Low+50%	Some team members don't have applications experience, but this module doesn't require a huge amount of application experience anyway.
LTEX	Nom	Some of the team members don't have web programming experience. However, all team members have good amount of general programming language experience, rest service and API are not hard to be done with minimum amount of learning.
PLEX	Normal	Team members have general ideas and experience of the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.

**Table 16: COTIPMO Cost Driver for Grade Data Import System Module**

<b>Cost Driver</b>	<b>Value</b>	<b>Rationale</b>
RELY	Nom	This module provides functionality to import the data from Easy Grade Pro to our system's database. If it fails, there won't be any financial loss, and the inconveniences are recoverable.
DATA	Normal	There will be a certain amount of data (of each student) input to our system everyday by the end of the day. Potential student size is 300-1000 so the test data amount is normal.
DOCU	Nom	This module requires moderate documentations.
CPLX	Low	This module will be just reading data from a file exported by Easy Grade Pro.
RUSE	Low+50%	This module can be slightly modified and reused for reading attendance data from an Easy Grade Pro file if LEMA school decided to switch from input attendance directly into our system to exporting attendance data from Easy Grade Pro.
TIME	Nom	There is little computation resource required for web-based project and the execution time won't be a constraint for the project.
STOR	Nom	All our data is text and table, it won't use much storage. Storage is cheap and it won't stop the project from moving forward.
PVOL	Nom	We are going to use PHP, MySQL and Apache which would make the module adaptive to various platforms.
ACAP	Hi	Analyst has pretty good skills and the whole team is working on capturing requirements and details of this module.
PCAP	Hi	The team is pretty capable of programming.
PCON	Very low	Only one of us is planning to take CS577b and there has just been a new member joined in who is also not going to continue 577b.
APEX	Nom+50%	For this module, most team members have good application experience.
LTEX	High	Team members are familiar with programming languages. This module does not require web-programming language experience which the team is not so familiar with. So for this module the language experience is high.
PLEX	High	This module will only be analysis of data and data extraction so it's fairly easy for all teammates. Therefore the team is quite familiar with the platform.
TOOL	Normal	We will use several tools during the phases to help doing the project. We have life cycle planning tool, defects tracking tools, etc.
SITE	High+50%	Most of the team members are in the same city. Except the DEN students, other on-campus students mostly stay on campus everyday and are easy to communicate with each other.