


**DEVELOPMENT OF JOB TRACKING SYSTEM USING  
COLLABORATIVE SOFTWARE PACKAGE: CASE STUDY IN  
TECHNOLOGY INFORMATION SYSTEM  
MANAGEMENT DIVISION**


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**A THEMATIC PAPER SUBMITTED IN PARTIAL  
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2015**


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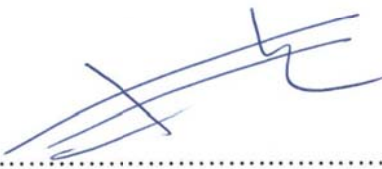
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**ABSTRACT**

This research proposes a Job Tracking System in division of Information Technology Management (ITM), Mahidol University that is an extended work of an existing Microsoft SharePoint project of ITM division.

The job tracking system utilizes data concerning staff information and staff levels to create a workflow and to help responsible staff to operate their tasks more effectively with less failure. Related technologies in this research are Microsoft SharePoint 2010™ and Cloud Technology. These two technologies are easy to implement in terms of the information sharing center, and easy access from anywhere with security via website as a portal respectively.

The result of the research shows that integrating a new Job Tracking System makes a better result than before. The user can work faster, it is easy to manage and less prone to error. Thus, this research could demonstrate as a best practice for other future work in a related domain.

**KEY WORDS: TRACKING SYSTEM / JOB TRACKING / TASK TRACKING, CLOUD TECHNOLOGY / MICROSOFT SHAREPOINT 2010™**

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การพัฒนาระบบติดตามงาน โดยใช้แพลตฟอร์มเวิร์กเพื่อการทำงานร่วมกัน: กรณีศึกษากลุ่มสาขาเทคโนโลยีการจัดการระบบสารสนเทศ

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#### บทคัดย่อ

การวิจัยนี้ได้นำเสนอระบบติดตามงานภายในคณะวิศวกรรมศาสตร์ สาขาการจัดการเทคโนโลยีสารสนเทศของมหาวิทยาลัยมหิดล ซึ่งเป็นการต่อยอดความสำเร็จของระบบข้อมูลบน SharePoint ของมหาลัย

โดยระบบติดตามงานจะนำข้อมูลในส่วนของข้อมูลพนักงานและสายงานบัญชีฉบับบัญชี เพื่อสร้างระบบการไหลของข้อมูลให้ผู้รับผิดชอบได้ทำงานได้อย่างไม่ขาดตกบกพร่อง เทคโนโลยีที่เกี่ยวข้องได้แก่ Microsoft SharePoint 2010™ และ Cloud Technology ซึ่งทั้งสองเทคโนโลยีนี้ทำให้สามารถสร้างศูนย์กลางในการแบ่งปันข้อมูลรวมไปถึงการเข้าถึงระบบได้อย่างง่ายและมีความปลอดภัย โดยใช้เว็บไซต์เป็นเครื่องมือในการเข้าถึง

ผลการวิจัยพบว่าระบบติดตามงานซึ่งถูกนำไปใช้งานจริงให้ผลลัพธ์ที่ดีกว่าระบบเดิม โดยสามารถทำให้ทำงานได้รวดเร็ว บริหารงานง่ายขึ้น และ ความผิดพลาดน้อยลง ดังนั้นเราสามารถที่จะใช้งานวิจัยนี้เป็นตัวอย่างเพื่อต่อยอดความสำเร็จสำหรับระบบงานที่มีเนื้อหาใกล้เคียงกันได้

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## **CHAPTER I**

### **INTRODUCTION**

To makes operational efficiency, the division of Information Technology Management (ITM), Mahidol University is seeking for the proper solutions against the limited resources, given as time, cost, and scope. This is because, the current job tracking system cannot deliver the proper outcome. For instance, an assigned works are lost in the middle of an operation, or cannot be finished on time. To solve this situation, the proposed job tracking system consisting of ability to track the whole process with an asynchronous communication is required. Combination of the robust technology of Microsoft SharePoint 2010<sup>TM</sup> on cloud technology and ITM's internal database gathering all of the graduated student information as need. Therefore, creating an effective system for operational efficiency is possible.

#### **1.1 Background and problem statement**

Information Technology (IT) [1] means an application of computer knowledge with a telecommunication equipment to store, search, distribute, track, collect, and manage the information. IT is the most fundamental and essential component for working under limited resource. Creating a proper solution is required for IT technology usage. Collaborative Software [2], a software unit for working together, can be classified into two groups. The first group takes an advantage of communication and the second group takes an advantage of learning management. This research chooses the advantage of communication for collaborative software. An example of the Collaborative Software using communication of two asynchronous parties is unnecessary to stay at the computer system simultaneously same as using E-mail, Web board, Newsgroup, etc. To operate with this concept, Microsoft SharePoint 2010<sup>TM</sup> [3] is required. Microsoft SharePoint 2010<sup>TM</sup>, the ready-made web application is a set of Microsoft products in 2010 version of the behavior coordinate and manage

documents through the web browser function as a storage medium exchange. Moreover, Microsoft SharePoint is also used to find the information within the organization whose primary function is to create a shared workspace, to share documents, and to invite people working together which all are included in this server system management.

The existing job tracking system for ITM is done manually. To understand this concept, we should start from the concept of relationship between job and task. Job is as if a file folder that contains a lot of tasks. To complete the job, all of the tasks would be completed. Next is a scenario of actors. There are two actors, given as assigner and receiver (operation staff). The flow is started when the assigner creates a job and assigns a task to the receiver. Then, the receiver writes down the subject and detail of the job and task. Then, the receiver operates the assigned tasks. When the tasks are finished, the receiver updates the tasks and reports to the assigner. The assigner writes down the finished task and checks what is left to complete the job. If all tasks are done, then assigner closes the job. If not, the process continues until finish all of task or until the abortion is raised in some task or job. With this concept, the system can be vulnerable, and the process is not effective enough. Moreover, the process cannot be tracked because of the syncing data problem. To solve all problems, the operation flow should be re-aligning to make a more effective than prior system by the paperless concept. The system requirement consists of the ability to record the assigned task, tracking the whole process, and synchronizing the data from both assigner and operation staff. By creating a lean workflow template, the user can get used to the new workflow easier, and the task assigner can manage and control the necessary part of the process.

The Division of Information Technology management (ITM), Mahidol University, is a good case study referring to a reputation and a number of students. The limited resource is one of the big obstacles for ITM division to give the adequate service for their students. To handle this problem, Job Tracking System is a game changer for the division. A solid process is created as a template that can be tracking a job, and helping management level to create a report for continuously improving the process in the further work.

This research is focused on developing a job tracking system by the feature of Collaborative Software. Microsoft SharePoint 2010<sup>TM</sup> is concerned to solve the current assigned job problem of ITM division by preventing the lost in the middle of job assignment and the incomplete assigned job on time. The system should provide help more accessible and more satisfied to the operation staff than the prior systems. This requirement can be simply to create a tracking system with a lean process workflow template. The template is used to guide the operation staff to work as the assigner wants them to do. The assigner can create the lean template, which is sequential process. The results are the operation staff taking short time to understand and to follow, and the assigner can track the process easier.

## **1.2 Objectives**

This research is to create a job tracking system that can track the job, task and responsible person for Mahidol University staff, division of Information Technology Management (ITM) by using Collaboration Software.

## **1.3 Scope of Work**

- The system is created by a Collaboration Software. Consisting of Microsoft SharePoint 2010<sup>TM</sup>, Cloud technology, and along with the ITM internal database to create Software as a Service (SaaS).
- This system could be accessed anywhere and anytime by the authorized person (ITM Staff) to make sure that the assigned job is focused.
- The program is designed on the concept of job and task. By creating the job, related to the setting workflow template first, the job assigner can create a plan for the project and workflow. Then, the program guides the operation staff to complete the task by using notification via E-mail.
- The customer satisfaction is focused. By using a questionnaire, the measurement is done after researcher deployed the job tracking system. The results of the surveys are concerned for further work.

## **1.4 Expected Result**

- To create a job tracking environment that provides more accessibility to the operation staffs and guild them for the new system that is more effective than prior.
- To provide more convenient system management for job tracking system administrator by the feature of Microsoft SharePoint 2010<sup>TM</sup> on cloud. The administrator can manage the system from anywhere and anytime. Moreover, researcher needs the satisfied results from ITM Staff, by questionnaire.

## **CHAPTER II**

### **LITERATURE REVIEW**

This chapter makes reader go through the literature review of the researcher works, which derived from a previous work of other researcher. The content leads reader through these topics, given as; Collaboration software, Software for job tracking, Microsoft SharePoint 2010<sup>TM</sup>, Theory of job or task management, and existing Current ITM Job tracking system which is the resource for job tracking system development.

#### **2.1 Collaboration software**

Collaboration Software [2] is the software creating a community or society as a media center to connect people for working together.

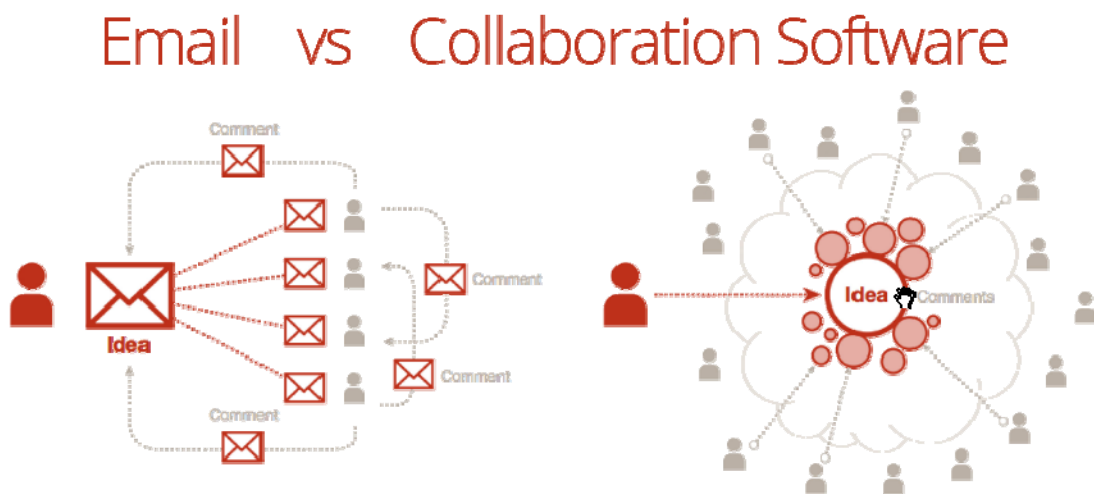
Social Software is more significant than the old media, such as Mailing List, UseNet, Email, Instant Messaging, Web, Blog, and Wiki. For software including all options for working together is called “Collaborative Software.”

In this study, we must understand the term of social software. The various types of social software can be classified into 4 categories as follows.

- Type of Knowledge Management: It includes Internet Forums, Blogs, and Wiki.
- Type of Communication Tools: It includes Instant Messaging, Text Chat, and Email.
- Type of tools to coordinate immediately (Collaborative real-time editors) It includes Google Doc, and Microsoft Office online.
- Type of Social Network Services: It is given as: Social Network Search Engines, Social Cataloging, Social Bookmarking, Social Friends, Social Guides, and Social Online Storages.

The type concerned in this paper is communication type. In asynchronous way, the system created from this concept becomes more formal and convenient enough to lean the old process and bring better potential in theory.

The Figure 2.1, it explains the concept of traditional communication via Email and new communication way based on Collaborative Software concept. The traditional way is one person, the high-level staff. The user put the idea to the staffs, and then receive the comments from their staffs. Whether the comments are good enough, the right to decision is reserved for high-level staff only. On the other hand, collaboration software is designed to put every personal ideas to the center, which could be commented by many people and could help each other to decide the best idea. This is like a social community gathering many people in many different roles to the center and let them improve the center idea by themselves.



**Figure 2.1** Portrait of email versus collaboration software.

## **2.2 Software for job tracking**

### **2.2.1 Workflow MAX**

Workflow Max [3] is a cloud based software for small and medium sized business. The product serves a customer with software as a service (SaaS) model sold by subscription. The software contains management tools for many domain in terms of project management. Job management is one of the interesting feature for this paper.

In terms of job management, the software is well developed, including the beautiful graphic interface, the useful calendar features, the powerful staff scheduling, and e-mail notification. By the way, there are some feature missing, for example, the job cannot be created with template, no searching task function, and no customization.

### **2.2.2 Job Tracker Professional**

Job Tracker Professional [4] is a job tracking software in professional grade. The software contains the bunch of feature, such as job sheet and job management for small business. According to the purpose of the software, it is created to support a professional grade of user. The user interface is too complicated for the beginning user.

### 2.2.3 Comparison of job tracking software features

**Table 2.1** Comparisons of job tracking software features.

The list of feature that software package can provide			
Feature	Job tracking by MS SharePoint	Workflow MAX	Job Tracker Professional
<b>Mandatory function</b>			
Overview of job	0	0	0
Due dates alarm	0	0	0
Overdue alarm	0	0	0
Percent of complete display	0	0	0
Displaying worker name	0	0	0
Clearing task after finish	0	0	0
Creating job with template	0	X	0
Customization without cost	0	X	X
<b>Optional function</b>			
Adding to calendar	X	0	0
Displaying workload	0	0	0
Predicting bottleneck	X	0	0
Searching task	X	X	0
Mobile site	0	0	0
<b>Notification function</b>			
Notify of creation	0	0	0
Notify of change	0	0	0
Notify of close	0	0	0
Notify of closed due date	0	0	0
Notify when overdue	0	0	0
		0 means support	X means un-support

In Table 2.1, it illustrates the comparisons of job tracking software features. The explicit results express that a job tracking tool from Microsoft SharePoint 2010<sup>TM</sup> is superior to other software in terms of the fully equipped mandatory feature and most flexible customization. Moreover, ITM division has already implemented the SharePoint server which is the reason for researcher to choose over those two competitors.

## 2.3 Microsoft SharePoint 2010™

Microsoft SharePoint 2010™ [5] is a tool to make the center web pages connecting among the users, news and organizations by empowering with tools to manage the site and giving the team working on site for spreading the others people in the organization. By searching function, the users are able to find the interrelated information on time. Meanwhile, the organization can specify the news, programs and updates with the proposed application for reaching the users information on demand, including their duties, responsibilities, working statuses, statuses of the team members, interests, and other conditions prescribed.

The Figure 2.2, it shows the features of the Microsoft SharePoint 2010™ consisting of:

- Enterprise Content Management: This feature helps enterprise to manage the content;
- Business Intelligence: This feature helps management level to get the useful information related for decision-making;
- Enterprise Search: This feature supports business-critical processes through customized search capabilities;
- Business Workflow: This feature helps people to manage project tasks by implementing business processes in each site of Microsoft Office SharePoint;
- Electronic Forms: This feature helps to easily develop the electronic forms which can be imitated from the original paper to make user familiar with the old style and leading to better use experience;
- Portals: This feature helps user to get easy access from site to site within Microsoft SharePoint system;
- Collaboration: This feature helps user to get collaborate community, which is easily to manage and is better work flow and outcome.



**Figure 2.2** The features diagram of Microsoft SharePoint.

## **2.4 Theory of job or task management**

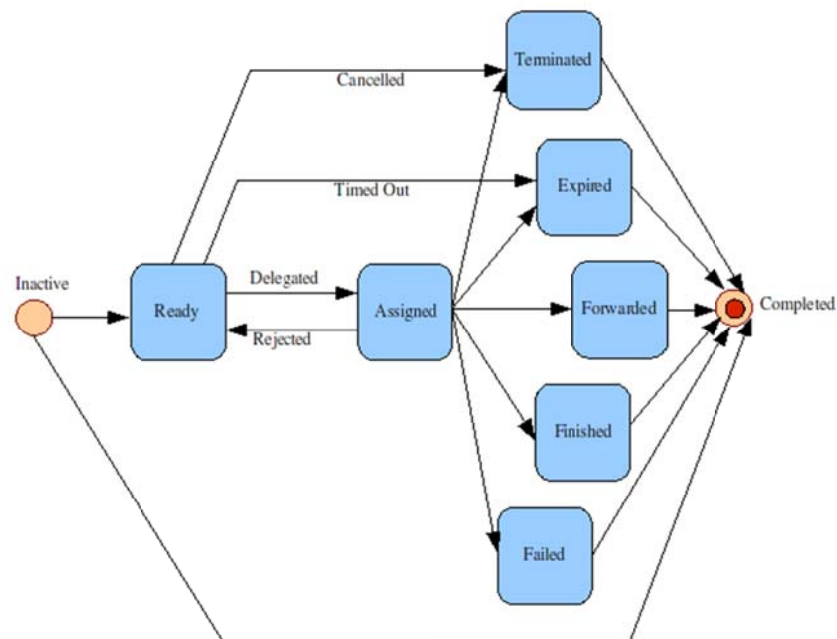
Task management is the way to control the tasks by understanding a process. The task life cycle is concerned for creating of the plan, testing, tracking and reporting. To accomplish the collective goals, the information sharing between staff is required.

To operate an effective task management, it requires all of expressions, including time, status, priority, human, financial resources assignments, recurrence, notifications, and so on. These are the basic activities of the task management.

The Figure 2.3, it explains the state machine diagram of task over its life cycle which is referenced from IBM [6].

Task life cycle can be described as follows.

- Ready: It refers to availability of staff;
- Assigned: It refers to the task has been delegated to the staff;
- Terminated: It refers to the task has been denied or stop for a reason;
- Expired: It refers to the task has been ignored;
- Forwarded: It refers to the task has been forward to other staff;
- Finished: It refers to the task has been completed by staff;
- Failed: It refers to the task which is assigned to staff is incomplete.



**Figure 2.3** The diagram of the task stating over its life cycle.

## **2.5 Existing system of Division of Information Technology Management**

For the first phase of implementation, each system is a standalone application. This means no data link between each application. Second phase is to create a link for each system for fusing as one database. This makes easier access and management. The name and description of each system can be described as follows.

### 1) Student Documentary System

Student Documentary system is developed to facilitate the work of staff and students by dealing with the student petition. The expected results are faster process and reduce the paper usage.

### 2) Staff Documentary System

Staff Documentary system is developed to manage and to track a book. The expected results are quick and easy to search name and location of the book which reduces the errors of data and also prevents the loss of the books.

### 3) Thesis System

Thesis and Dissertation system is developed to solve the documents required for the Master thesis with the delay in implementing the submission and approval. The expected results are given as: accelerating the process and reducing the use of paper.

### 4) Advisor System

Advisor system is developed to create an appointment between advisor and student for tracking progress on the thesis and dissertation. The expected results are enhancement of communication and reduction of paper for the entire process.

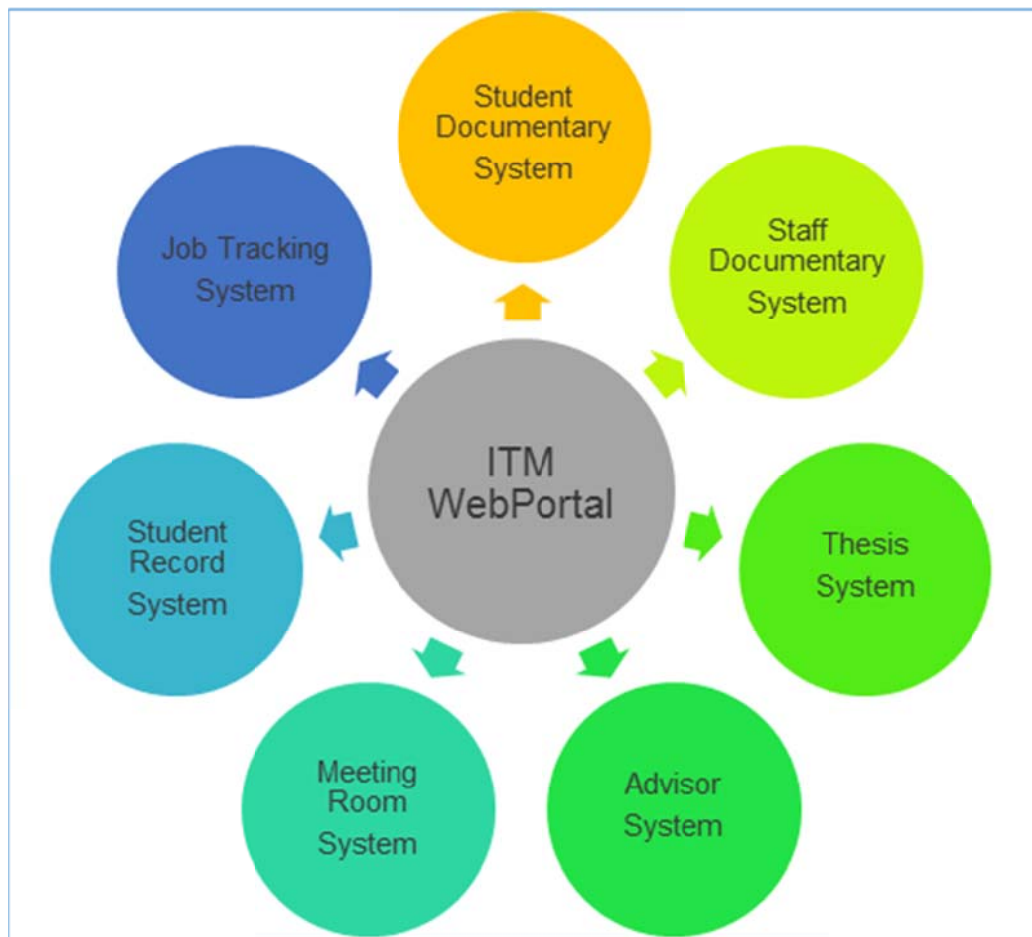
### 5) Meeting Room System

Meeting Room system is developed to manage a booking process for meeting room. The expected result are smarter process and easier management.

### 6) Student Record System

Student Record system is developed to monitor and to store the status and information of a student. The expected results are accuracy in information storage, reducing the time to search for information, and establishing the reliability of data in the system even more.

The Figure 2.4, it shows the relationship between ITM Web Portal and each system. Each system uses ITM Web Portal as a bridge to connect from one to the other. The data linked between each system consists of student information, staff information, staff level hierarchy, etc.



**Figure 2.4** The relationship of ITM Web Portal and each ITM internal system.

## **CHAPTER III**

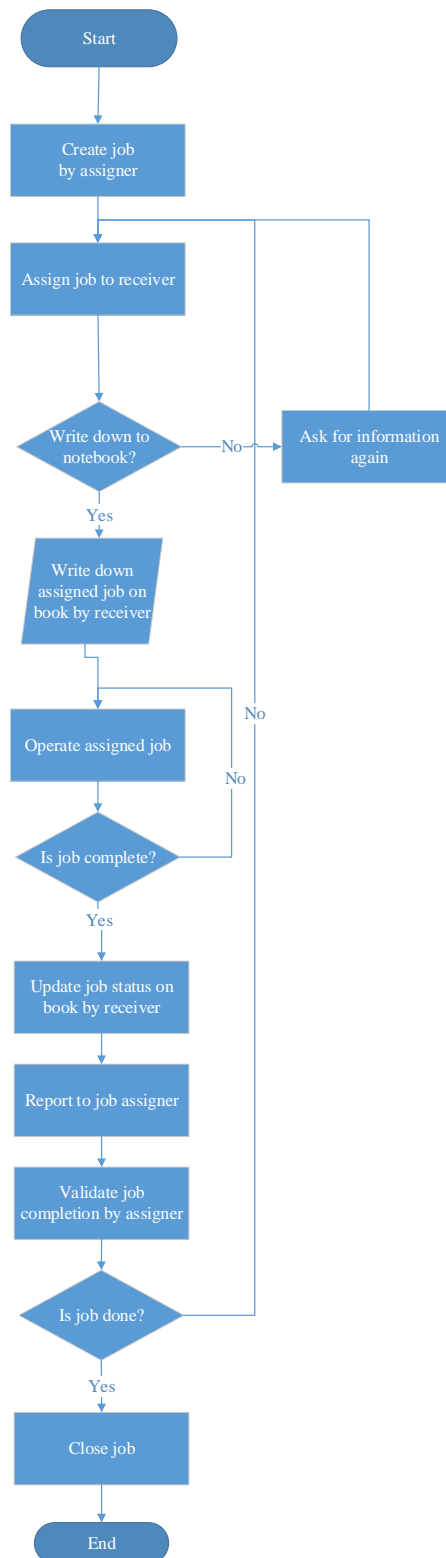
### **RESEARCH METHODOLOGY**

In this chapter, the research methodology would be described with several given sections as follows. First section explains the current ITM job tracking system. Second section explains the requirement gathering. Third part explains the requirement summary. Fourth section explains the system design. Fifth section explains user interface design. Sixth section explains satisfaction evaluation. Lastly, the research schedule are also demonstrated.

#### **3.1 Current ITM job tracking system**

The current system interconnects between assigner and operation staff with the concept of manual operation. The processes could be described as follows. Firstly, the assigner assigns a job to the staff. Then the staff notes the subject down to their storage, such as google calendar and note application on mobile phone/notebook. This system is good at speed. The current ITM job tracking operation flow shown in Figure 3.1. There are many subsystem blocks for improvement, such as writing down to the storage process and updating to assigner process by receiver. With the features of Microsoft SharePoint 2010<sup>TM</sup> for creating the automate workflow, it is used to improve the process. By tracking and controlling both task and staff via e-mail, the notification makes thing more formal with less mistake.

To make the more helpful system, the specific requirements data are gathered from the system flow and the work process of division ITM. The intention is to classify the types of work process to create the template of workflow. Thus, the user could reduce the time to recreate the repeatable workflow.



**Figure 3.1 Flow chart of current ITM job tracking system.**

### **3.2 Requirement Gathering**

Firstly, we will focus on system flow creation. The procedure of this session is as follows.

- 1) Collect the general information, such as problem and purpose from taken the ITM staffs, Faculty of Engineering, Department of Technology of Information System Management, Mahidol University. (Date of meeting, December 17, 2014).

- 2) Keep the requirement data from the staff of ITM for preparing and designing the system (Date of meeting, December 17, 2014).

- 3) Design the prototype and report of system for the staffs who contribute to validate and suggest the system for program development. (Date of meeting, 20 December 2014).

For the second part, the workflow creation can be described as follows.

- 1) Collect the information from the higher-level users who learn the pattern of division ITM workflow. (Date of meeting, 9 May 2015).

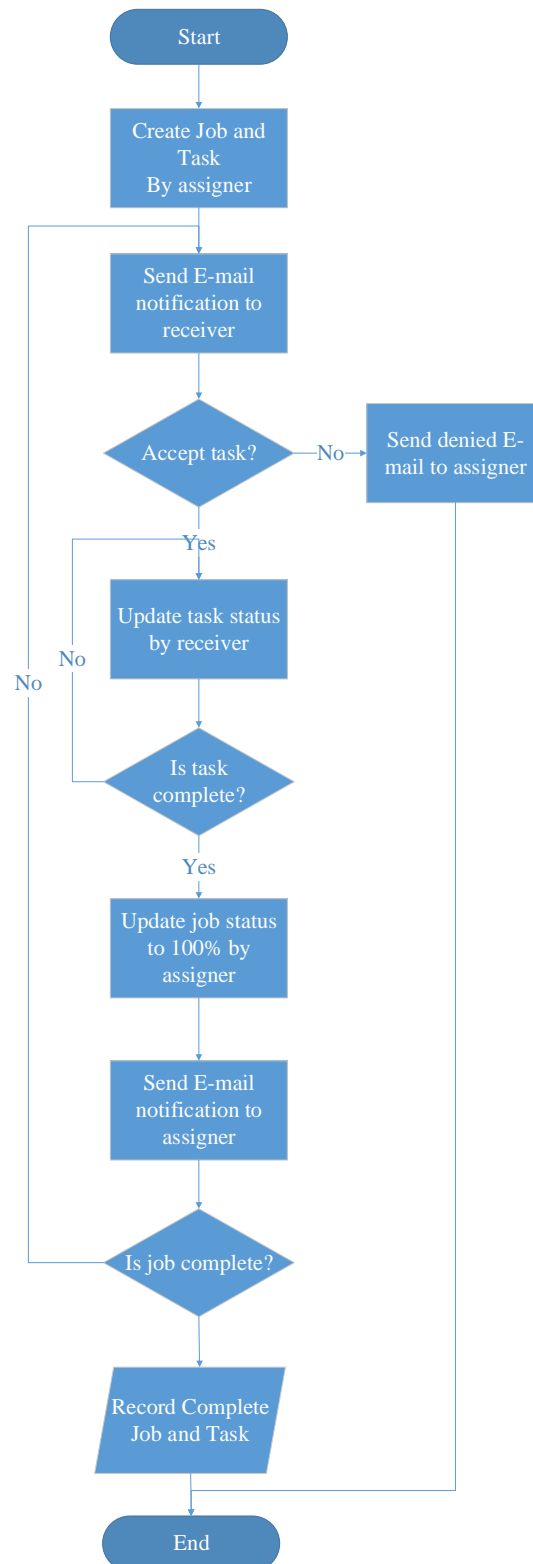
- 2) Propose the template which can be eliminated the repeatable pattern for confirmation of idea. (Date of meeting, 16 May 2015), (see in Appendix A).

### 3.3 Requirement Summary

The summary of the requirement gathering could be explained as follows.

- 1) The assigner creates the job and task for receiver.
- 2) The system sends an e-mail notification to receiver.
- 3) The receiver checks whether the subject of task is correct to accept the task.
  - a. If not, the system notifies the assigner and end flow.
- 4) The receiver does the assigned task, and keeps the progress report by updating the progress status in percentage format.
- 5) The receiver completes the task by assigning the value of 100% on the task, and then submits. The system checks the completion, and sends the e-mail to notify the assigner.
- 6) The assigner receives the e-mail, and updates the job status in percentage format.
- 7) The assigner checks whether the completion of job and task have been done.
  - a. If not, the system notifies the receiver to continue their jobs.
- 8) The system records all activities.
- 9) The flow ends.

The Figure 3.2, it illustrates the new system created by the gathered requirements.



**Figure 3.2** Flow chart of new ITM job tracking system.

### 3.4 System design

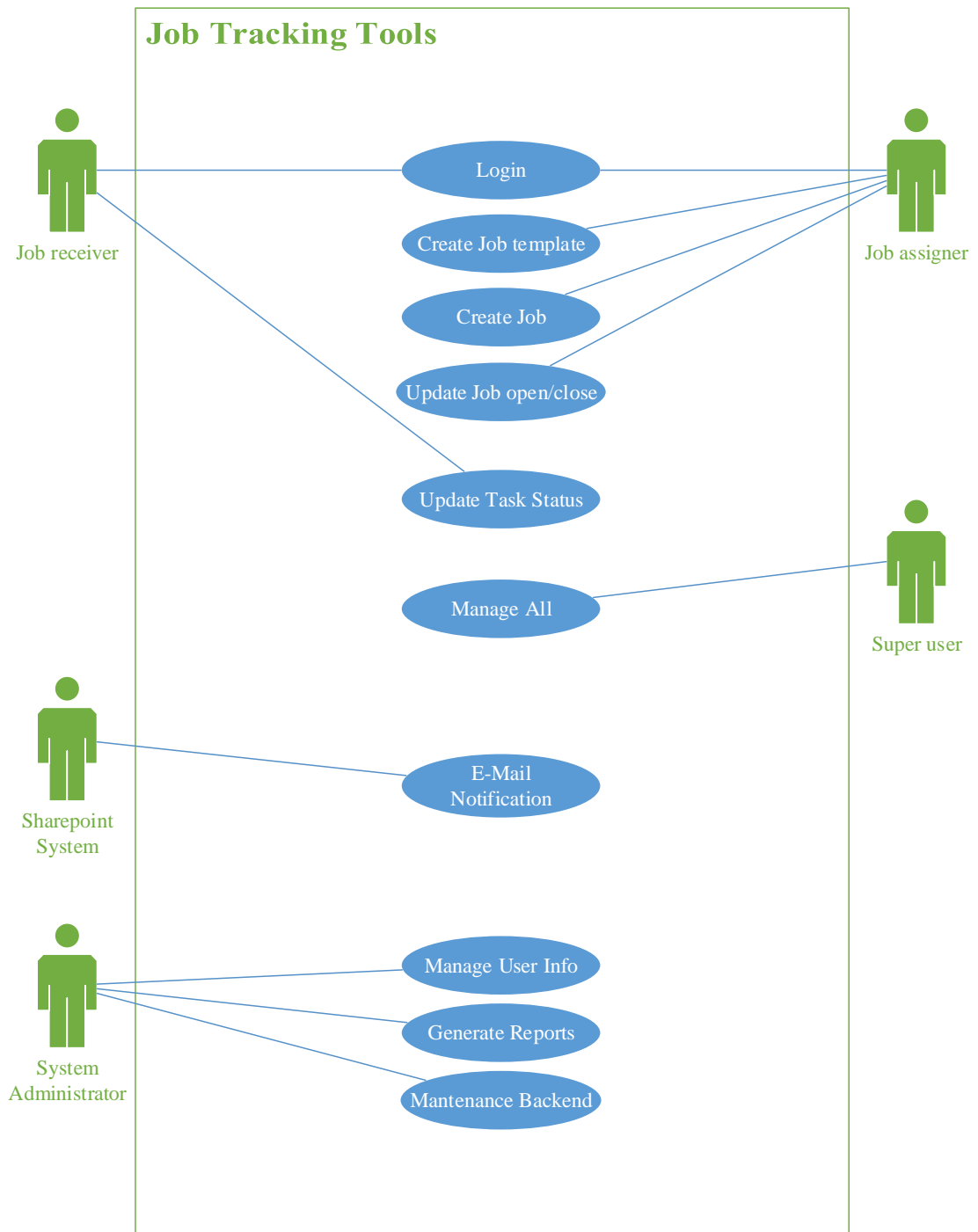
The system design part uses the theory of UML [7] diagram based on the usage diagram to understand relationships between users and system. The activity diagram is used to learn the activity occurring in the system, as shown in Figure 3.4. Lastly, Figure 3.5 shows a class diagram.

The Figure 3.3, it illustrates the usage diagram of job tracking system, which can be explained into two groups, given as: actors and its use case. Firstly, for the actors, there are five actors in this system as follows.

- Job receiver: Group of users that responds to the task,
- Job assigner: Group of users that responds to the job and the task,
- Super user: Group of users that inherits the right from both job receiver and job assigners,
- SharePoint system: The system that sends the notification e-mail to responsible person,
- System administrator: The user that maintains the system to the normal state and in-charge stated when the system down.

Second, the use cases can be describes as follows.

- Login: The module to login the system,
- Creating the job template: The module to create job template,
- Creating the job: The module to create job and task,
- Updating job to open/close: The module to update the job status,
- Updating the task status: The module to update the task status,
- E-mail notification: The module to notify responsible person via E-mail,
- Managing the user info: The module for managing the user,
- Generating the reports: The module to generate report,
- Maintenance back end: The module for maintaining the backend system.



**Figure 3.3** Usage diagram of new job tracking system.

The Figure 3.4, it illustrates the activity diagram of job tracking system. The procedure can be described as follows.

- 1) Job assigner decides to create either job or job template.
  - If choose creating job template, the system guides to create job template with menu:
    - a) Job assigner fills in the job template's name.
    - b) Job assigner fills in the task beneath the created job template.
    - c) Job assigner fills in the responsible staff for each task.
  - If choose creating job, the system guides to create job with menu.
- 2) Job assigner creates the job.
- 3) Job assigner chooses the job template.
- 4) System auto-creates the task beneath the job related to the selected job template.
- 5) System sends E-mail notification to the responsible staff.
- 6) Operation staff decides to accept or not to accept the task.
  - If yes, operate the task and update status.
  - If no, send the denied E-mail to the assigner by system.
- 7) Operation staff updates the task status, and system sends the update status to the job assigner.
  - If the task is finished, operation staff updates the task status to completed status, and system sends E-mail to notify the task assigner.
  - If the task is not finished, then keeps the operating task and continuously updates the task status.
- 8) System sends the task completed e-mail status to the job assigner.
- 9) Job assigner updates the job percentage of completion.
  - If the job is finished, the job assigner closes the job.
  - If the job is not finished, the job assigner sends an e-mail to start other waiting task to operation staff.
- 10) End of program.

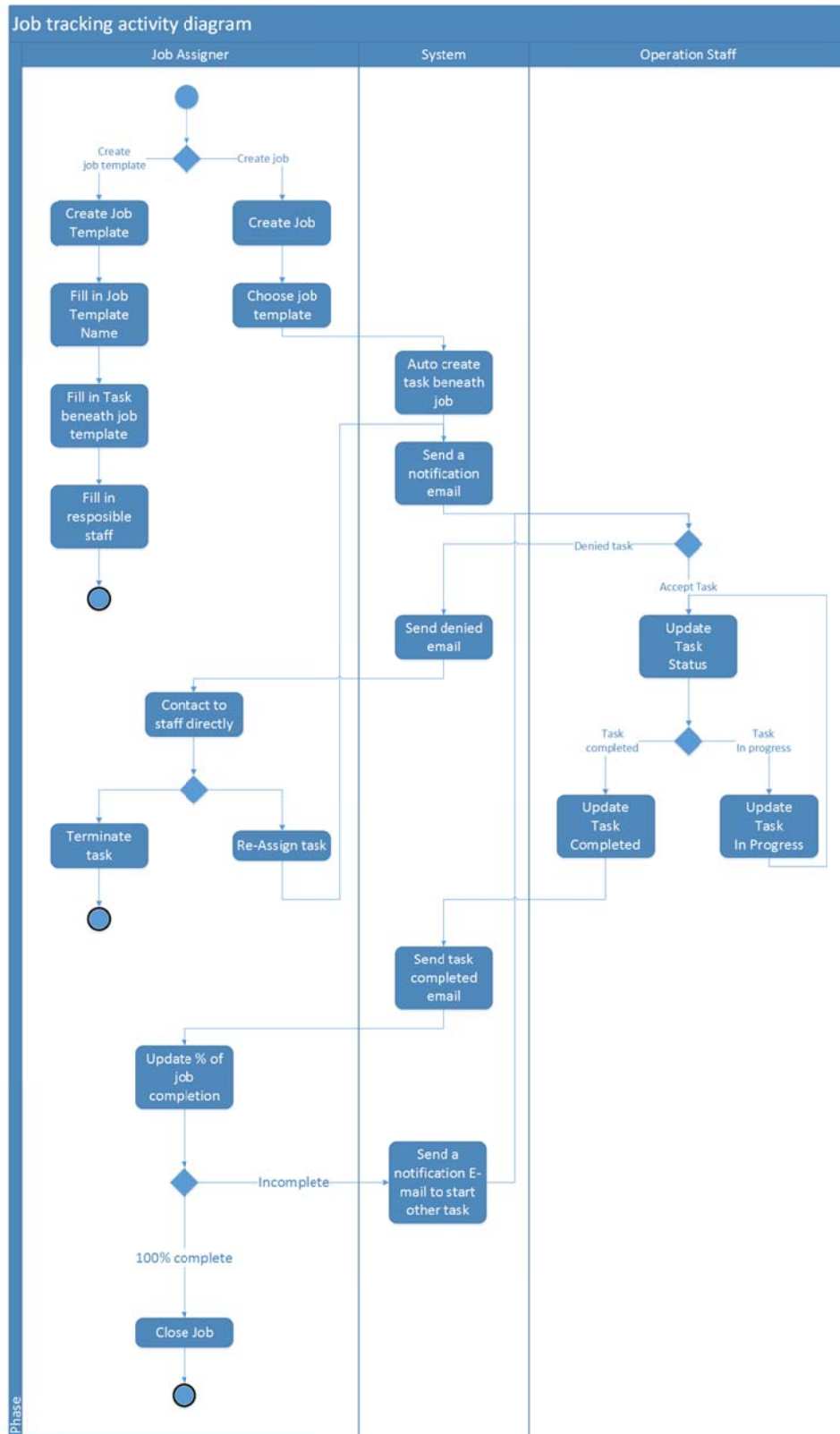
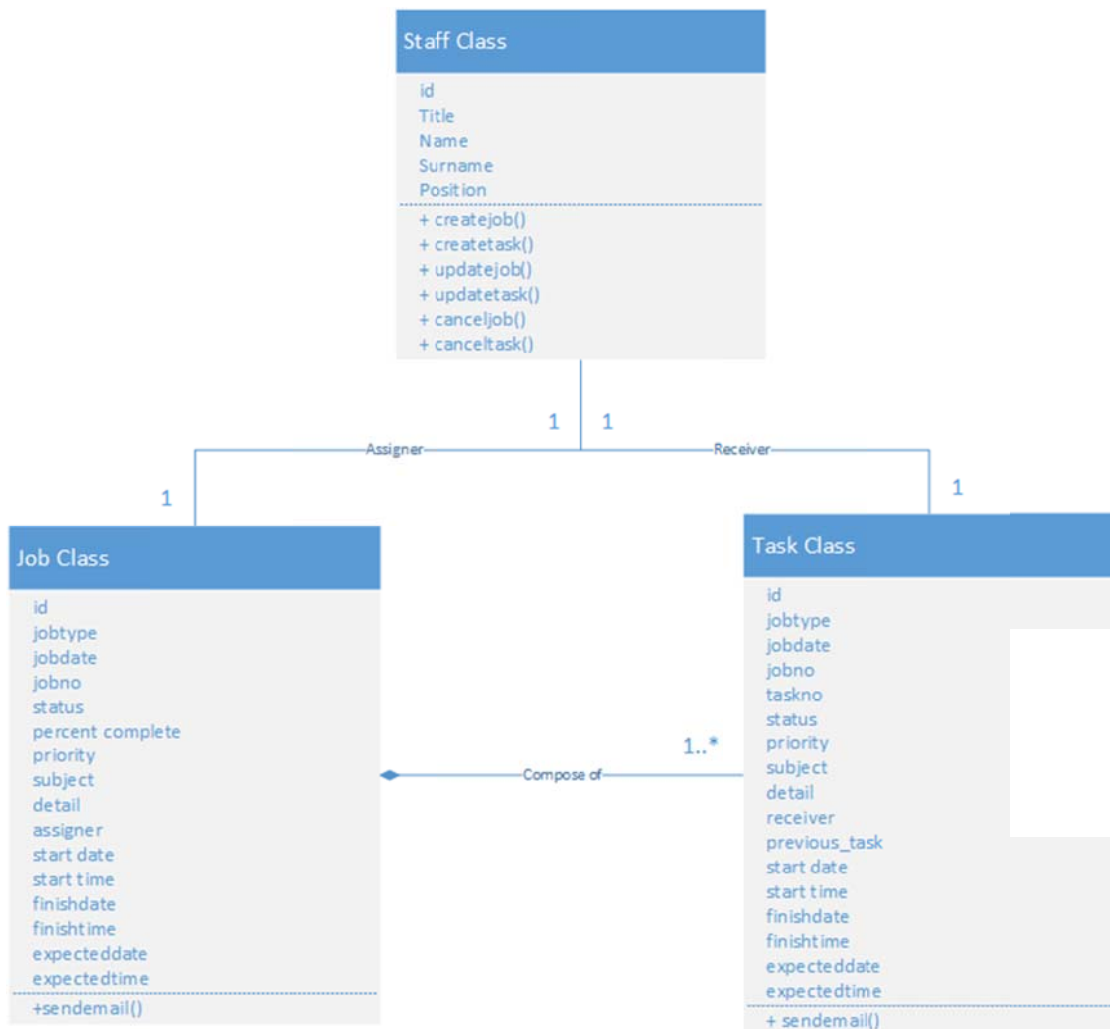


Figure 3.4 Activity diagram of the new job tracking system.

The Figure 3.5, it illustrates the class diagram, which thoroughly explains the relationship of Staff class, Job class, and Task class. Staff class consists of information of staff that contains the most methods. Job class composes of one task or many tasks that depends on the complication of the job. The key for mapping these three classes is id. The relationship between Staff class and Job class is one-to-one relation. It means that one staff can handle one job. However, Job class has the one-to-many relationships. It means that one job is able to have one more tasks beneath the job.



**Figure 3.5** Class diagram of new job tracking system.

### 3.5 Interface design

The interface design is based on the requirements that are gathered from the users and are related to the diagram in Figure 3.5. The main program are jobs and tasks related to mother and child concepts. Job likes a file folder contained many tasks. To complete the job, the user has to complete the entire task beneath its job title. Each task has its own priority, due date, and responsible person which can be tracked the task and reminds the staff to complete on time. The results of the design will be demonstrated in Figures 3.6 - 3.10.

Today Task : system\_date

jobno	status	%complete	priority	subject	detail	assigner	start date	expecteodate
DAI-20150208-00001	In progress	0	High	wifi ใช้งานไม่ได้	เนื่องจาก หนูกดสาย lan รบกวนทำการแก้ไข	อ.โอม	2/1/2558	2/8/2558
DAI-20150208-00002	In progress	0	Low	ต้องการกรรณ report	อาจารย์คอมพิวเตอร์ report ของนักเรียนที่ยังไม่	อ.โอม	2/2/2558	2/9/2558
DAI-20150208-00003	In progress	50	Mid	ระบบสาขาวิทยุภาค มีปัญหา	นำโมโนมา โฟโต้	อ.โอม	2/3/2558	2/10/2558

⏪ 1 ⏩

**Figure 3.6** User interface of job view screen.

150208-00003-00002	Completed	High	โฟโต้	โฟโต้ที่โชน C รบกวนดำเนินการครับ	พีดี	task2	2/4/2558	2/11/2558	23:59:00
--------------------	-----------	------	-------	----------------------------------	------	-------	----------	-----------	----------

⏪ 1 ⏩

**Figure 3.7** User interface of task view screen.

## Respond to job owner

The screenshot shows a web form titled "Respond to job owner". At the top, the "Job No:" is displayed as "ITS - 20150302 - 00001". Below this, there is a large rectangular area containing several input fields: "Issue date:" with a date picker set to "02/03/2014", "Subject:" with an empty text box, "Detail:" with a larger empty text area, and "Attach File:" with a "Browse" button. At the bottom right of the form area, there are "OK" and "Cancel" buttons.

**Figure 3.8** User interface screen of responding to job owner.

## Create Job

The screenshot shows a web form titled "Create Job". At the top, the "Job No:" is displayed as "ITS - 20150302 - 00001". Below this, there is a large rectangular area containing several input fields: "Issue date:" with a date picker set to "02/03/2014" and a time field set to "17 : 45", "Expected date:" with a date picker set to "06/03/2014" and a time field set to "23 : 59", "Priority:" with a dropdown menu set to "Normal", "Subject:" with an empty text box, "Detail:" with a larger empty text area, and "Attach File:" with a "Browse" button. At the bottom right of the form area, there are "OK" and "Cancel" buttons.

**Figure 3.9** User interface screen of creating job.

## Create Task

Job No : ITS - 20150302 - 00001 - 00001

Issue date: 02/03/2014 Time: 17 : 45 h.

Expected date: 06/03/2014 Time: 23 : 59 h.

Priority: Normal

Previous Task: End

Receiver:

Last Task

Subject :

Detail :

Attach File : Browse

OK Cancel

**Figure 3.10** User interface screen of creating task.

### 3.6 Satisfaction evaluation

For measuring the user satisfaction, a questionnaire is used to analyze and to extract the meaning of the collected data for continuous improvement and further research. This questionnaire would prove the concept of research whether it is true or false.

The criteria of the questionnaire separated into three parts, which is designed to separate the general information from the specific information that we need to analyze. First part is general information, including gender, age of user, education level, and profession. Second part would be about customer satisfaction of new ITM job tracking system, including the usability, performance, and overall user

experience. The new system compared to the old system. Lastly, the additional suggestion of user is also provided, as shown in Appendix B.

### 3.7 Research schedule

Table 3.1, it shows the schedule of this research. Which can be separated into seven phases consisting of preliminary, data gathering, system analysis and design, system development, system implementation, system testing, and documentation phase.

**Table 3.1** Research schedule

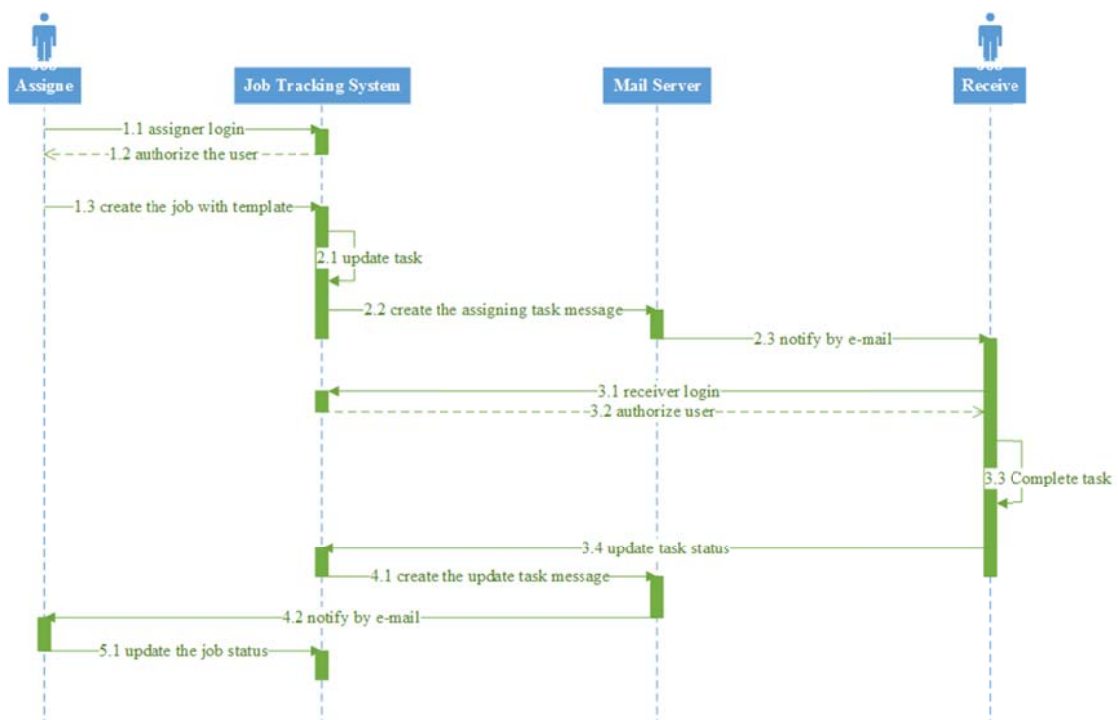
ID	Task Name	Start	Finish	Duration	Q1'58			Q2'58			Q3'58		
					1/5	6/5	11/5	01/6	6/6	11/6	6/6		
1	Preliminary	04/01/2558	17/01/2558	14d									
2	Data gathering	17/01/2558	13/02/2558	28d									
3	System analysis and design	26/01/2558	26/02/2558	32d									
4	System development	27/02/2558	24/07/2558	148d									
5	System implementation	27/02/2558	24/07/2558	148d									
6	System testing	27/02/2558	24/07/2558	148d									
7	Documentation	01/07/2558	01/08/2558	32d									

## CHAPTER IV

### RESULTS

In this chapter, it illustrates the result and discussion of the job tracking system it implemented for Information Technology Management Division, Faculty of Engineer, Mahidol University. First part would explain the operation flow of the new job tracking system. Second part would explain the appearance and function of the new job tracking system that is created based on the gathering requirement of users. Third part would explain the user satisfaction evaluation results.

#### 4.1 The operation flow of the new job tracking system



**Figure 4.1** Operation flow of the new job tracking system.

The Figure 4.1, it explains the operation flow of the job tracking system, which are separated into two major roles, including Job assigner and Task receiver. The flow starts from the job assigner who is in the chart to create a job with the instant job template. Then, the system generates the task based on the job template, including the responsible person in each task, which makes the shorter and easier process to solve. After receiving the notification e-mail, task receiver has to complete those assigned tasks on time, which is set up by the assigner. Then, the task receiver would send an updated status of each task to assigner by the notification e-mail. Then, Job assigner would check the correction of the task beneath the job, in order to close the job.

## **4.2 The appearance and function of the new job tracking system**

This session explains the functions and workflow of the job tracking program developed by the requirements gathered from ITM instructors and staffs. The requirements are converted and modified to make the system, which is simple and easy to understand the concept of tracking job and task. The left hand side menu in Figure 4.2 displays the quick list which is the necessary component of the system. The menu is divided into four categories, given as: job part, task part, contact assigner, and other components.

### 4.2.1 Main page of job tracking system

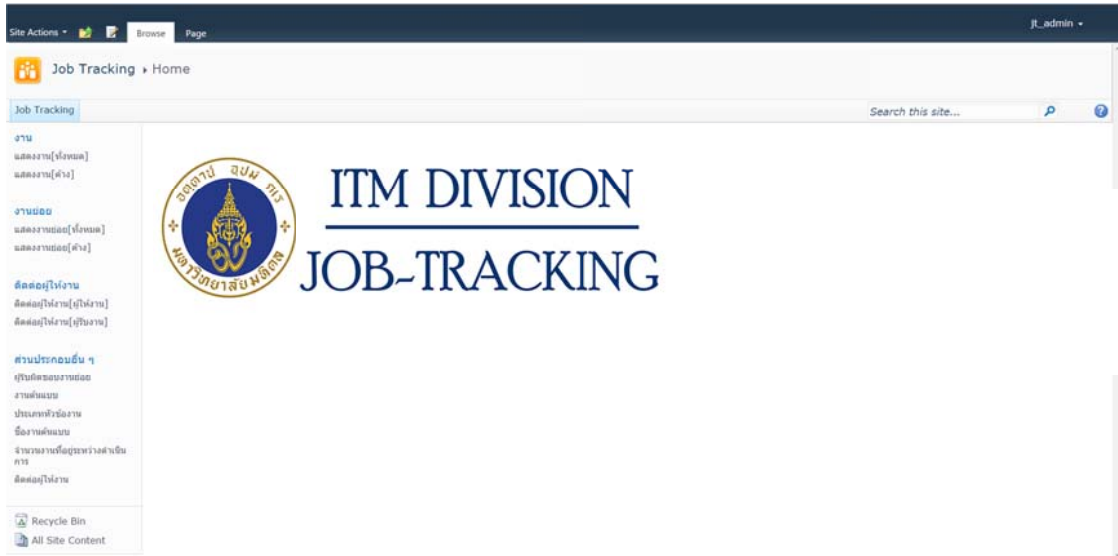


Figure 4.2 Main page of job tracking system.

### 4.2.2 Job information screen

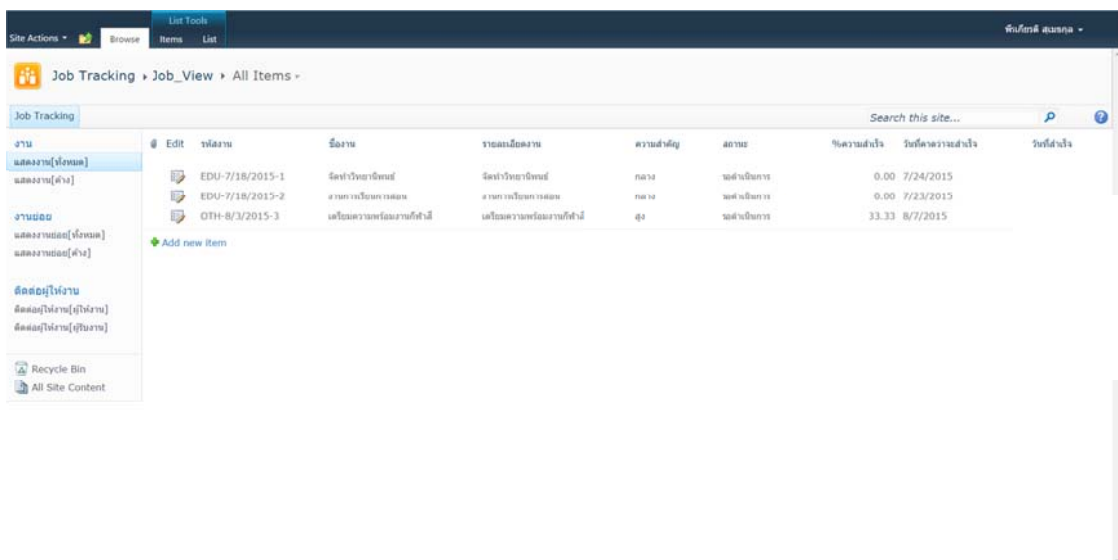


Figure 4.3 Job information screen.

The Figure 4.3, it illustrates the job information screen for monitoring a job information. The screen displays the remaining jobs to complete for each user account, which is used by either job assigner or administrator.

By selecting the job information on the left hand side under the topic of job, there are two jobs information sub-menus consisting of all job information display and the waiting job information display. After choosing the job information sub menu, the job information would be appeared on the main screen. The information consists of job code, job name, job detail, job priority, job status, completion percent, expected finish date, and finished date. The meaning of each column are given as:

- Job code: unique code of each job;
- Job name: name of job;
- Job detail: detail of job;
- Job priority: priority of job consisting of low, medium, and high status;
- Job status: status of job consisting of waiting and completed status;
- Completion percent: percent of job completion;
- Expected finish date: expected date to finish job;
- Finished date: date of finish date.

The job assigner can create a new job by selecting a plus button (Adding new item), as shown in Figure 4.4.

Job\_View - New Item

Edit

Save Close Paste Cut

Commit Clipboard

### หัวข้องาน

เลขที่งาน : [Dropdown] - 4/30/2015 - 1

วันที่เริ่มงาน 4/30/2015

วันที่คาดว่าจะเสร็จ

ความสำคัญ กลาง

หัวข้องานต้นแบบ [Dropdown]

ชื่อหัวข้องาน

รายละเอียดหัวข้องาน

เอกสารแนบ [Click here to attach a file](#)

**Figure 4.4** Job information with adding item screen.

Figure 4.4 illustrates the job information adding item screen for job information which is used to create the job information as follows.

1. Select the job type,
2. Choose the start date,
3. Choose the expected finish date,
4. Choose the priority of the job,
5. Select the job template,
6. Fill in the job's subject name,
7. Fill in the job's detail,
8. Attach a file whether there is an attachment for referencing the job or some necessary material,
9. Click the save button on the left corner when finished.

### 4.2.3 Task information screen

งาน	Edit	รหัสงาน	วันที่คาดว่าจะเสร็จ	สถานะ	ชื่องาน	รายละเอียดงาน	ความสำคัญ	ผู้ใช้งาน	วันที่เสร็จ
<b>งานที่ยังค้างอยู่ : เฝ้าระวังการรั่วไหลของสารเคมี (3)</b>									
		OTH-8/3/2015-3-2		รอดำเนินการ	งาน 2		สูง	ทีมเฝ้าระวัง	
		OTH-8/3/2015-3-3		รอดำเนินการ	งาน 3		สูง	ทีมเฝ้าระวัง	
		OTH-8/3/2015-3-1	8/26/2015	สำเร็จ	งาน 1		สูง	ทีมเฝ้าระวัง	8/3/2015
<b>งานที่ยังค้างอยู่ : งานการให้บริการ (7)</b>									
		EDU-7/18/2015-2-1		รอดำเนินการ	จัดการเอกสาร		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-2		รอดำเนินการ	หาอาจารย์เข้าบรรยาย		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-4		รอดำเนินการ	สรุปรายชื่อนักศึกษาสมัครวิชา		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-5		รอดำเนินการ	สอนพิเศษ		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-6		รอดำเนินการ	สอนโปรแกรม		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-7		รอดำเนินการ	งานงานเอกสารศึกษา		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-2-3	7/24/2015	รอดำเนินการ	แจ้งนักศึกษาจบการเรียน		กลาง	ทีมเฝ้าระวัง	
<b>งานที่ยังค้างอยู่ : จัดทำวิทยานิพนธ์ (5)</b>									
		EDU-7/18/2015-1-1		รอดำเนินการ	นัดตั้งคณะกรรมการสอบ		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-1-2		รอดำเนินการ	จัดสอบ		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-1-3		รอดำเนินการ	ประกาศสอบ		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-1-4		รอดำเนินการ	จัดสอบ		กลาง	ทีมเฝ้าระวัง	
		EDU-7/18/2015-1-5		รอดำเนินการ	ประกาศผลสอบ		กลาง	ทีมเฝ้าระวัง	

Figure 4.5 Task information screen.

The Figure 4.5, it illustrates the task information screen for displaying a task information which is the remaining task to complete for each user account used by either job receiver or administrator.

By selecting the task information on the left hand side under the topic of task, there are two tasks information submenus consisting of all task information display and the waiting task information display mode. After choosing the task information mode, the task information would be appeared on the main screen. The information consists of task code, expected finish date, task status, task name, task detail, task priority, job assigner name, and finished date. The meaning of each column can be described as follows:

- Task code: unique code of each task;
- Expected finish date: date of expected finish date;
- Task status: status of task consisting of waiting and completed status;
- Task name: name of task;
- Task detail: detail of task;
- Task priority: the priority consisting of low, medium, and high status;
- Job assigner: name of job assigner;
- Finished date: date of finish date.

The task receiver can edit task by selecting white icon. Then the update task screen illustrates as Figure 4.6.

The screenshot shows a web application window titled "Task\_View - new". At the top, there is an "Edit" menu with icons for Save, Close, Paste, Copy, Cut, and Delete Item. Below the menu, the form is titled "งานย่อย" (Sub-task). The form contains the following fields:

- เลขที่งาน (Task ID): EDU - 7/18/2015 - 2 - 1
- วันที่เริ่มต้น (Start Date): 7/18/2015
- วันที่คาดว่าจะสำเร็จ (Expected Completion Date): 8/21/2015
- สถานะ (Status): รอดำเนินการ (Waiting for action)
- ความสำคัญ (Priority): กลาง (Medium)
- ผู้รับงาน (Assignee): โยภะวิทย์ อรรถมนตรี
- ชื่องานย่อย (Sub-task Name): จัดตารางสอน
- รายละเอียดงานย่อย (Sub-task Details): [Empty text area]
- เอกสารแนบ (Attachments): Click here to attach a file

**Figure 4.6** Task information with updating item screen.

Figure 4.6 illustrates the updating item for the task information. It can be described as follows:

- 1) Change the status from waiting mode to complete mode;
- 2) Click the save button on the left corner when finished;

### 4.2.4 Screen of personal responsibility

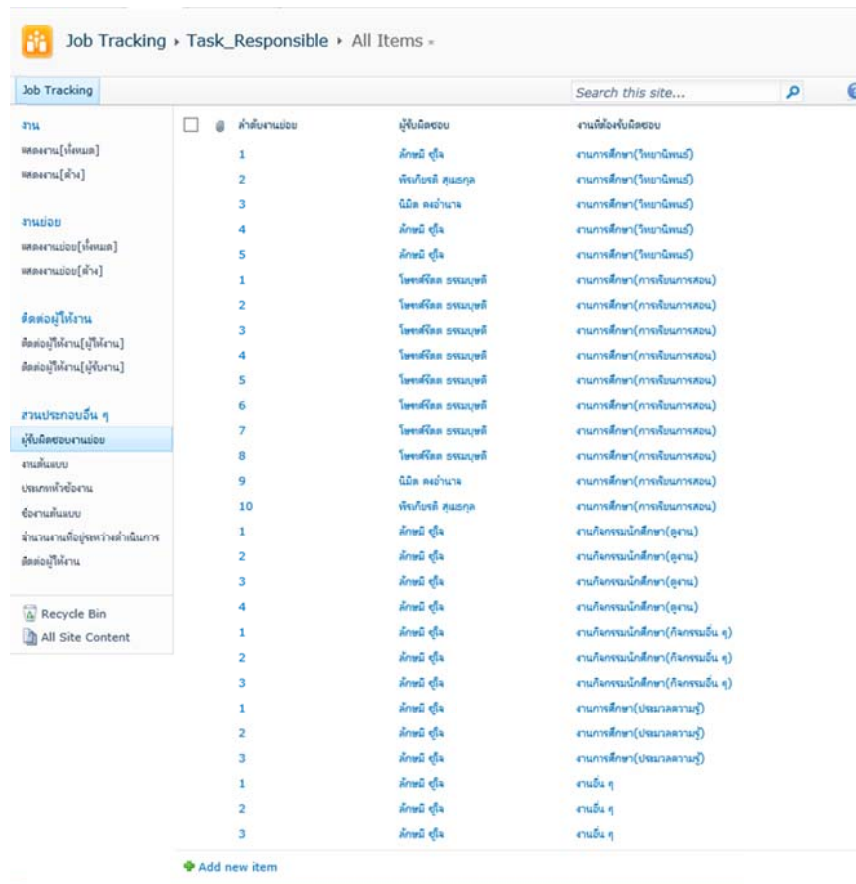


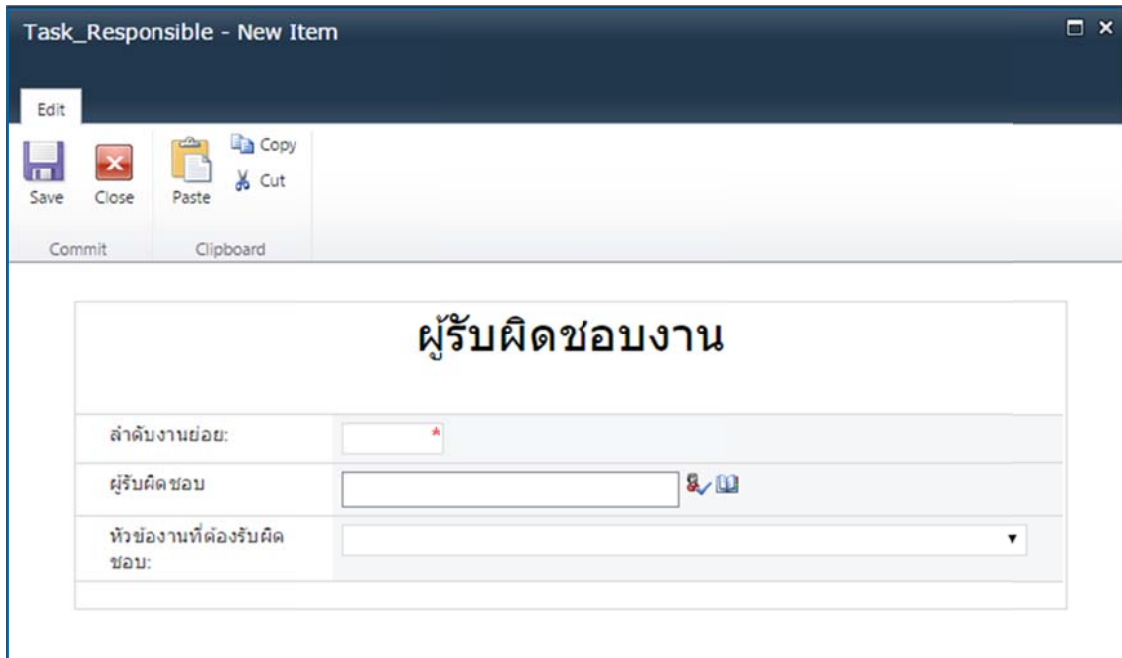
Figure 4.7 Screen of personal responsibility list.


The Figure 4.7, it illustrates the personal responsibility list information including the assigned tasks. This list screen has task sequence column, responsible person column, and task subject column. The descriptions for each column could be described as follows.

- Task sequence: It is to link the responsible person with specific task;
- Responsible person: It is to assign staff to operate specific task;
- Task subject: It is to assign task for staff to operate.

By selecting the responsible person on the left hand side under the topic of component list, the responsible person screen would be appeared to illustrate the information of both responsible person for each task and the task sequence.

The administrator user can create a new responsible person by selecting a plus button (Adding new item), as shown in Figure 4.8.



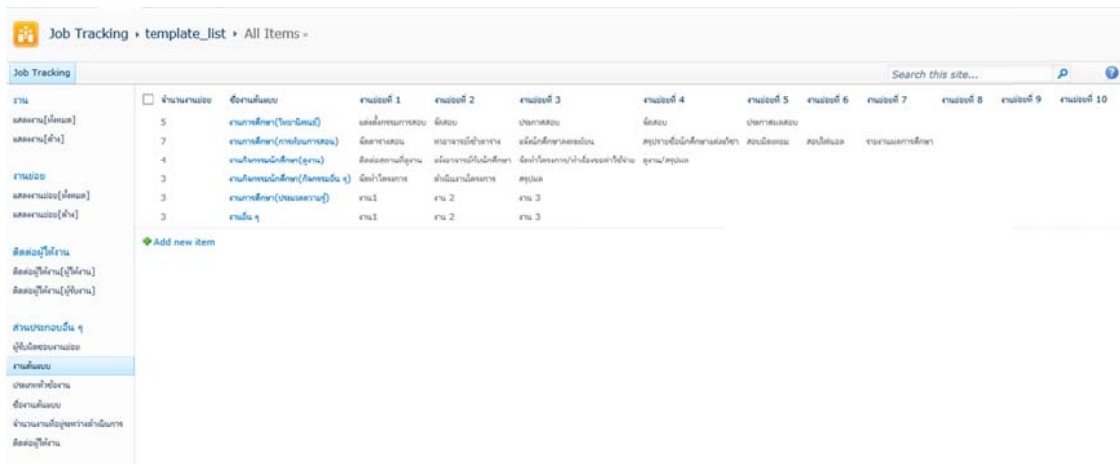
ผู้รับผิดชอบงาน	
ลำดับงานย่อย:	<input type="text"/>
ผู้รับผิดชอบ	<input type="text"/> 
หัวข้องานที่ต้องรับผิดชอบ:	<input type="text"/>

**Figure 4.8** Screen of adding item for personal responsibility session.

Figure 4.8 illustrates the adding item screen for responsible person details. It can be described as follows:

- 1) Fill in task sequence,
- 2) Choose the responsible person from active directory,
- 3) Choose the task subject,
- 4) Click the save button on the left corner when finished.

### 4.2.5 Job template screen



**Figure 4.9** Job template screen.

The Figure 4.9, it illustrates the job template screen for creating a new job template. This screen has total number of task, job template name, task name 1, task name 2, task name 3, task name 4, task name 5, task name 6, task name 7, task name 8, task name 9, and task name 10. The meaning of each column can be described as follows.

- Total number of task: It is to define the limit of the task number;
- Job template name: It is to assign the job template name;
- Task name 1-10: It is to assign task 1-10 name.

By selecting the job template on the left hand side under the topic of component list, the screen would appear the job template used to reference the creation of new template.

The administrator user can create a new job template by selecting a plus button (Adding new item), as shown in Figure 4.10.

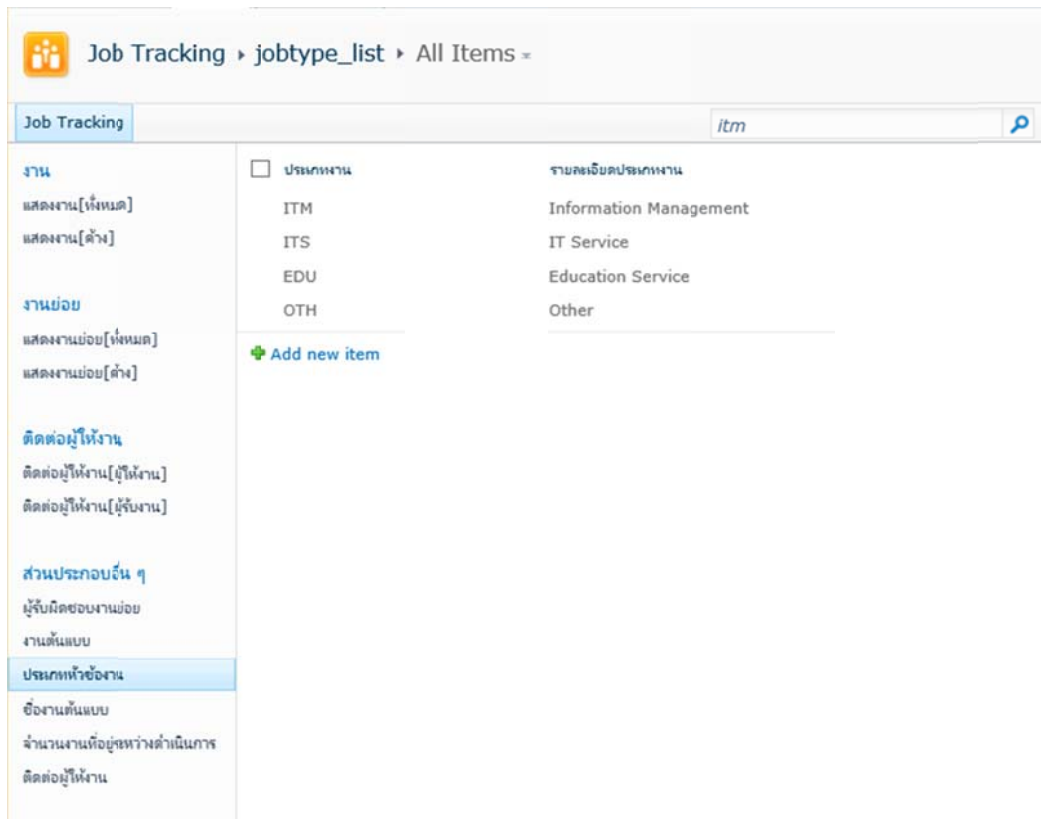
งานต้นแบบ	
จำนวนงานย่อย	<input type="text"/>
ชื่องานต้นแบบ	<input type="text"/>
งานย่อยที่ 1	<input type="text"/>
งานย่อยที่ 2	<input type="text"/>
งานย่อยที่ 3	<input type="text"/>
งานย่อยที่ 4	<input type="text"/>
งานย่อยที่ 5	<input type="text"/>
งานย่อยที่ 6	<input type="text"/>
งานย่อยที่ 7	<input type="text"/>
งานย่อยที่ 8	<input type="text"/>
งานย่อยที่ 9	<input type="text"/>
งานย่อยที่ 10	<input type="text"/>

**Figure 4.10** Job template with adding item screen.

Figure 4.10 illustrates the adding item screen for the job template used to create a new job template. It can be described as follows:

- 1) Fill in the total task number,
- 2) Choose the job template name,
- 3) Fill in the task name 1 (mandatory),
- 4) Fill in the task name 2 (optional),
- 5) Fill in the task name 3 (optional),
- 6) Fill in the task name 4 (optional),
- 7) Fill in the task name 5 (optional),
- 8) Fill in the task name 6 (optional),
- 9) Fill in the task name 7 (optional),
- 10) Fill in the task name 8 (optional),
- 11) Fill in the task name 9 (optional),
- 12) Fill in the task name 10 (optional),
- 13) Click the save button on the left corner when finished.

### 4.2.6 Job Type screen



**Figure 4.11** Job type screen.

The Figure 4.11, it illustrates the job type screen which is created for displaying a job type information and creating a new job. This screen has job type, and job type description. The meaning of each column can be described as follows.

- Job Type: It is to assign the job type;
- Job Type description: It is to assign the job type description.

By selecting the job type on the left hand side under the topic of component list, the job type screen appears on the main screen. The screen illustrates the information of job type, which is used to reference for creating a new job type or validate the job type.

The administrator user can create a new job type by selecting a plus button (Adding new item), as shown in Figure 4.12.

**Figure 4.12** Job type with adding item screen.

Figure 4.12, it illustrates the adding item screen for the job type used to create new job type. It can be described as follows.

- 1) Fill in the job type,
- 2) Fill in the job type description,
- 3) Click the save button on the left corner when finished.

#### 4.2.7 Job Template name screen

ลำดับ	ชื่องานต้นแบบ
1	งานการศึกษา(วิทยานิพนธ์)
2	งานการศึกษา(ภาคเรียนการสอน)
3	งานกิจกรรมนักศึกษา(จัดงาน)
4	งานกิจกรรมนักศึกษา(กิจกรรมอื่น ๆ)
5	งานการศึกษา(ประมวลความรู้)
9	งานอื่น ๆ

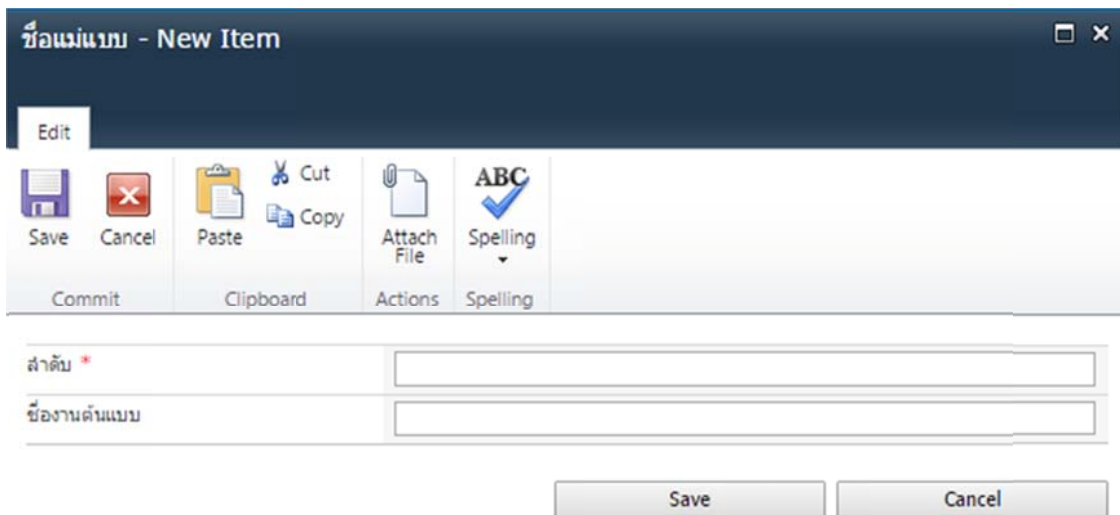
**Figure 4.13** Job template's name screen.

The Figure 4.13, it illustrates the job template name screen for displaying a job template name information and creating a new Job template name. This screen has sequence column, and Job template name column. The meaning of each column can be described as follows.

- Sequence: It is to assign sequence;
- Job template name: It is to assign job template name.

By selecting the Job template name on the left hand side under the topic of component list, the screen would appear the job template name used to reference the creation of new template.

The administrator user can create a new job template name by selecting a plus button (Adding new item), as shown in Figure 4.14



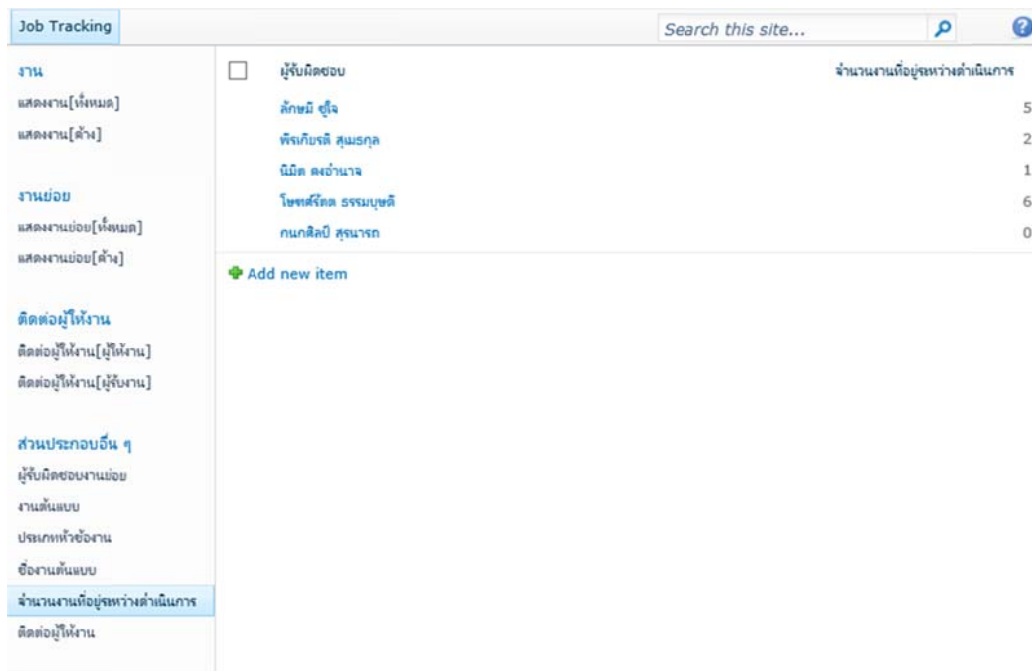
The screenshot shows a web application window titled 'ชื่อแม่แบบ - New Item'. It features a ribbon-style menu with the following options: Save, Cancel, Paste, Copy, Attach File, and Spelling. Below the menu are two input fields: 'ลำดับ \*' (Sequence) and 'ชื่องานต้นแบบ' (Job template name). At the bottom right, there are 'Save' and 'Cancel' buttons.

**Figure 4.14** Job template's name with adding item screen.

Figure 4.14 illustrates the job template name add screen which is used to create new job template name. It can be described as follows.

- 1) Fill in the sequence,
- 2) Fill in the Job template name,
- 3) Click the save button on the left corner when finished.

#### 4.2.8 Pending task of each receiver screen



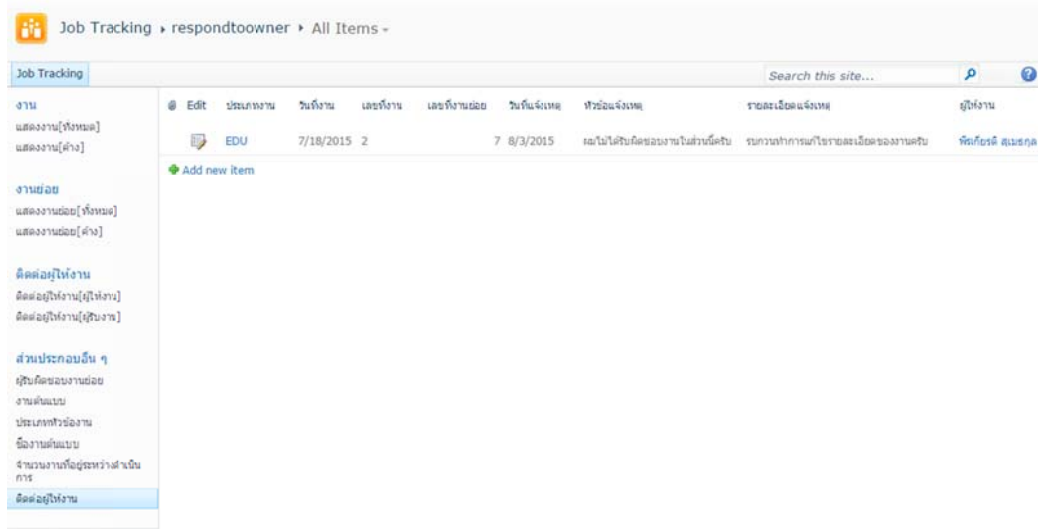
The screenshot shows a web application interface for 'Job Tracking'. It features a search bar at the top right with the text 'Search this site...'. Below the search bar is a table with columns for task names and their corresponding 'จำนวนงานที่รอดำเนินการ' (Number of pending tasks). The table lists several tasks with their respective counts. Below the table, there is a green plus icon and the text 'Add new item'. On the left side, there is a sidebar menu with various navigation options, including 'จำนวนงานที่รอดำเนินการ' which is currently selected.

Task Name	จำนวนงานที่รอดำเนินการ
ผู้รับผิดชอบ	
ลักษณะ ชูใจ	5
พิชญเกียรติ สุเมธกุล	2
นิมิต ดออำนาจ	1
โฆษสิทธิ์ ธรรมบุษดี	6
กนกศิลป์ สุธนากร	0

**Figure 4.15** Pending task of each receiver screen.

Figure 4.15 illustrates the pending task of each receiver screen, which is used to displays the number of pending task of each receiver. The number of pending task is automatically generated by the workflow. The triggers are beneath job list and task list. The workflow initiates when task is created, the workflow updates the number of pending task which is related to responsible person name. Other workflow would be initiate when the status of task changes from in progress to complete. The workflow decreases the number of pending task of responsible receiver.

### 4.2.9 Response to job owner screen



**Figure 4.16** Response to job owner screen.

Figure 4.16 illustrates the response to job owner screen, which is used to send an issue about the received task transferring from job receiver to the job owner. The purpose of this screen is to notify the job owner in case that some information of task is incorrect. Thus, the task can be modify or cancel from job assigner to make the workflow continues as normal state. The meaning of each column can be described as follows.

- Job type: type of job refer from task information;
- Job date: date of job refer from task information;
- Job no: number of job refer from task information;
- Task no: number of task refer from task information;
- Issue date: date of raised issue;
- Issue subject: subject of raised issue;
- Issue detail: detail of raised issue;
- Job assigner: name of job assigner.

By selecting the respond to job owner screen on the left hand side under the topic of component list, the respond to job owner screen appears on the main

screen. The screen illustrates the information of respond to job owner, which is used to raise an issue to job assigner.

The respond to job owner screen can be add item by clicking on add new item which refers to Figure 4.17.

The screenshot shows a web browser window titled "respondtoowner - New Item". The interface is in Thai. At the top, there is a toolbar with buttons for "Save", "Close", "Paste", "Copy", and "Cut", along with "Commit" and "Clipboard" labels. The main content area has a large heading "ติดต่อผู้ให้งาน" (Contact Job Owner). Below the heading, there are several form fields: "เลขที่งาน" (Job No.) with a dropdown and a calendar icon, "วันที่แจ้งเหตุ" (Issue Date) with the value "7/4/2015" and a calendar icon, "หัวข้อแจ้งเหตุ" (Issue Subject) with a text input field, and "รายละเอียดแจ้งเหตุ" (Issue Detail) with a large text area. At the bottom, there is an "Attachments" section with a button that says "Click here to attach a file".

**Figure 4.17** Response to job owner with adding item screen.

Figure 4.17 illustrates the adding item screen for the respond to job owner used to create an email to notify job assigner. It can be described as follows.

- 1) Fill in the job type, the job date, the job no, and the task no,
- 2) Fill in the issue date,
- 3) Fill in the issue subject,
- 4) Fill in the issue detail,
- 5) Click the save button on the left corner when finished.

### **4.3 Satisfaction evaluation result**

The questionnaire have been taken from two instructors and two staffs, the general information are described as follows.

- The questionnaire have been taken from two male and two female, which their ages are around twenties to forties.
- The education levels are vary, such as Bachelor degree, Master degree and Doctoral degree.
- Their professions are instructors and university staffs.

Second part of the questionnaire have been taken to measure the satisfaction levels of users. The satisfaction level is set up to five levels, which level one means unsatisfied and level five means satisfied. The results can be explained as follows.

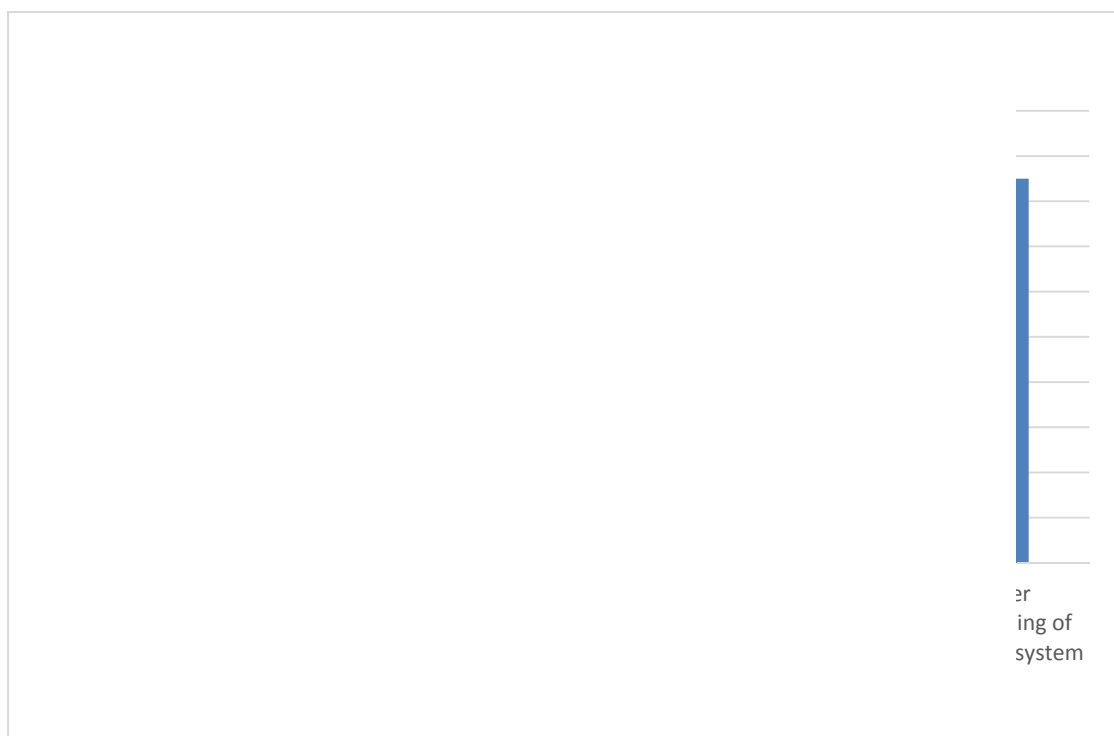
- The new job tracking system gets eighty-two percent of satisfaction.
- The most satisfied points of the new system for the items are reducing both the paper usage and repeated processes.
- The second and third places for user satisfaction, which both of scores are equal, consist of fast and easy to track (performance) and better understanding of the job tracking concept.

Third part is the additional suggestion, which the result is no additional suggestion.

From Table 4.1 and Figure 4.18, the results of satisfaction evaluation are represented in the forms of data table and bar chart, respectively.

**Table 4.1** The gathered information of satisfaction evaluation

General information			
Gender	Male	Female	
	2	2	
Age	20 - 40 years		
Education level	Bachelor	Master	Doctoral
	1	1	2
Roles	Instructor	Staff	
	2	2	
Satisfaction information			
Satisfaction level	Avg. level from 1 to 5	Max	
1. Easy to understand the new system	3.5	5	
2. Fast and easy to track	4.25	5	
3. Reduce paper work and repeat step	4.5	5	
4. Easy access	4	5	
5. Better understanding of job-tracking system	4.25	5	
Summary score	20.5	25	
The new system get	<b>82 %</b>		of user satisfaction

**Figure 4.18** The results of satisfaction levels in bar chart.

## **CHAPTER V**

### **CONCLUSIONS**

As previously mentioned, this research is to improve the job tracking problem with more effective and more satisfied than prior system. The development of job tracking system is also described. The system has already been implemented in division of ITM, Faculty of Engineer, Mahidol University. The conclusions are also described in this chapter.

#### **5.1 Discussions and conclusion**

Job tracking system has been redesigned and redeveloped for the requirements of the division of Information Technology Management, Faculty of Engineer, Mahidol University. By collecting the requirements from staffs having experiences in their fields, the proposed system is created by those experiences based on job and task, and is combined with the Microsoft SharePoint 2010<sup>TM</sup> and Cloud technology. For existing work, there was no any technology to solve this problem, and the old system also operates manually causing the inefficient works due to frequent delays and errors.

Therefore, systems are studied and developed to provide a more effective system. This research is a study of the existing system of ITM division, and collects data to analyze, to redesign, and to develop. The unified modeling language (UNL) diagram is also used to illustrate the way system interface with the user. The system can facilitate the Job tracking activity, providing the benefit of users in many ways, given as:

- 1) The system is easy to understand;
- 2) The system is fast and easy to track the job and task;
- 3) The system reduces the paper used and repeat processes;
- 4) The system provides an easier access and management by cloud;
- 5) The system delivers the job tracking concept.

The user satisfaction evaluation was taken from two instructors of ITM faculty and two operation staffs by questionnaire. The results obtained from the questionnaire are considered as the high rating of satisfaction comparing to the old system. An eighty-two percent is the number of user satisfaction from the new job tracking system. Most of the users agree that the new system could reduce the usage of work paper and the number of repeated process.

## **5.2 Further recommendation**

The proposed job tracking is designed on the concept of accessibility as the guideline for learning a job tracking concept. It also includes the program interface with less complicated process.

However, the limitations of this job tracking system are given as follows. Firstly, the system was designed with no dependency concept which means no linkage between tasks. Next, the proposed system supports for auto-generating ten tasks. Lastly, the system has no task searching function, the proposed system provides only pending task screen.

For further recommendations for improvement; the system can change the process flow from no dependency to one-way/two-way dependency or network relation which makes the system more complicated in terms of tracking. Next, auto-generating tasks can turn-up the number of tasks by coding more tasks on the workflow. Next, the system should has a searching task function. Next, the tracking team should be implemented. Next, the current task on hand screen should provide more information, such as priority, number of complete task, and year. Additional suggestion, the improvement should be started after user get used to the old system.

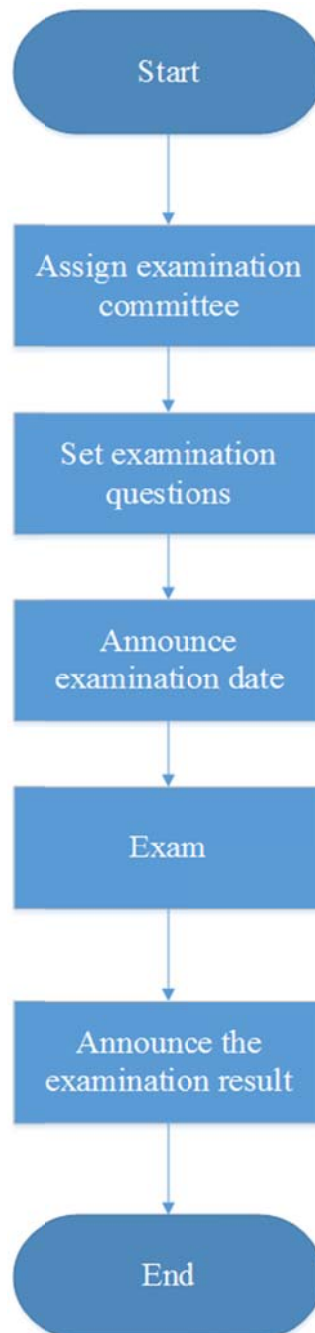
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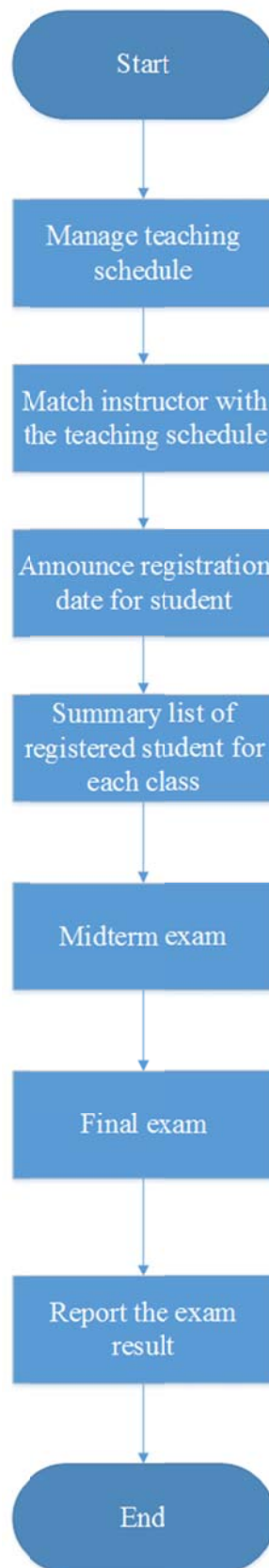
## **APPENDICES**

## APPENDIX A

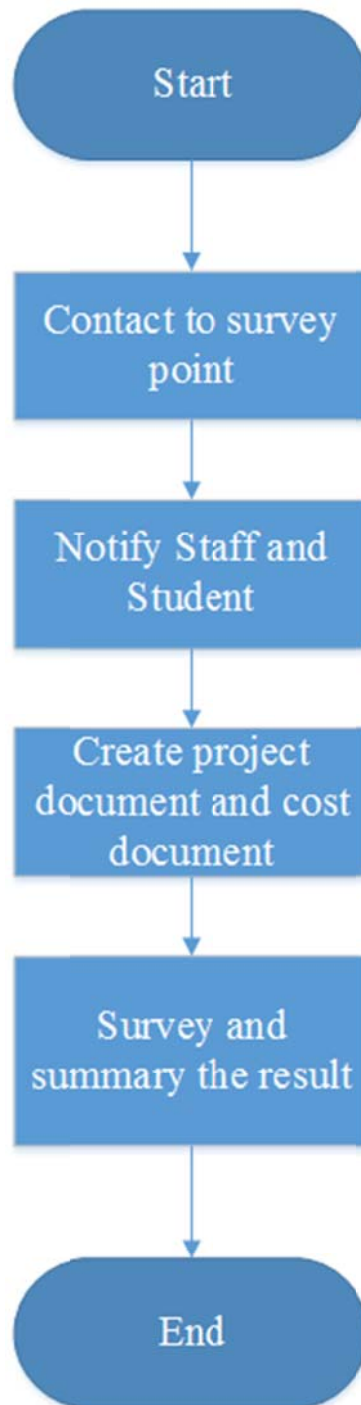
### JOB TEMPLATE'S FLOW CHART



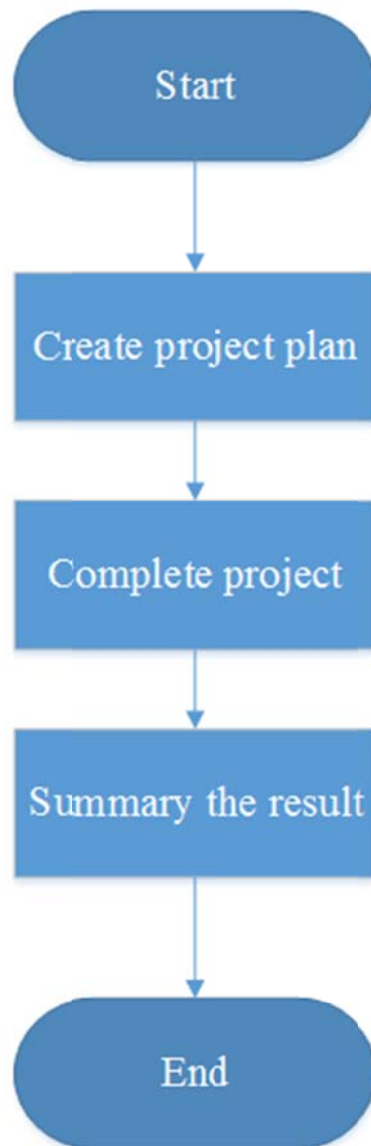
**Figure A.1** Flow chart of examination thesis and thematic paper template.



**Figure A.2** Flow chart of education template.



**Figure A.3** Flow chart of survey template.



**Figure A.4** Flow chart of other activities template.

## APPENDIX B

### EVALUATION FORM (IN THAI)

#### แบบสอบถามเพื่อประเมินระดับความพึงพอใจต่อการใช้งานระบบ

#### คำชี้แจง

แบบสอบถามนี้จัดทำขึ้น เพื่อสอบถามความพึงพอใจต่อการใช้งานระบบติดตามงาน โดยใช้แพคเกจซอฟต์แวร์เพื่อการทำงานร่วมกัน: กรณีศึกษากลุ่มสาขาเทคโนโลยีการจัดการระบบสารสนเทศ

โปรดทำเครื่องหมาย  ในช่อง  ที่ตรงกับความเป็นจริงของท่านมากที่สุด

#### ตอนที่ 1 สถานภาพของผู้ตอบแบบสอบถาม

เพศ :	<input type="checkbox"/> ชาย	<input type="checkbox"/> หญิง		
อายุ :	<input type="checkbox"/> ต่ำกว่า 20 ปี	<input type="checkbox"/> 20 – ต่ำกว่า 40 ปี	<input type="checkbox"/> 40 – ต่ำกว่า 50 ปี	<input type="checkbox"/> 50 ปีขึ้นไป
การศึกษา :	<input type="checkbox"/> ต่ำกว่า ปริญญาตรี	<input type="checkbox"/> ปริญญาตรี	<input type="checkbox"/> ปริญญาตรีโท	<input type="checkbox"/> ปริญญาเอก
อาชีพ:	<input type="checkbox"/> อาจารย์	<input type="checkbox"/> เจ้าหน้าที่มหาวิทยาลัย		

ตอนที่ 2 โปรดทำเครื่องหมาย ✓ ลงในช่องระดับความพึงพอใจที่ตรงกับความเป็นจริงของท่านมากที่สุด

หัวข้อ	ระดับความพึงพอใจ				
	มากที่สุด (5)	มาก (4)	ปานกลาง (3)	น้อย (2)	น้อยที่สุด (1)
1. สามารถทำความเข้าใจระบบได้โดยง่าย ใช้เวลาในการเรียนรู้สั้น					
2. สามารถติดตามงานได้อย่างรวดเร็วและง่ายดาย					
3. สามารถลดการใช้กระดาษและขั้นตอนการทำงานซ้ำ					
4. ระบบสามารถเข้าใช้งานได้สะดวกจากหลายช่องทาง					
5. ระบบทำให้เข้าใจขบวนการติดตามงานมากขึ้น					

ข้อเสนอแนะ

.....

.....

## APPENDIX C

### USER MANUAL (IN THAI)

#### คู่มือการใช้งานระบบติดตามงานของสาขากลุ่มสาขาเทคโนโลยีการจัดการระบบสารสนเทศ

การทำงานของระบบแบ่งออกเป็น 2 ส่วน คือ ส่วนผู้ใช้งานทั่วไป และ ส่วนของผู้ดูแลระบบ โดยจะแบ่งหน้าที่กันตามสิทธิ์ของ user ที่สามารถเข้าถึงข้อมูลได้

#### สิทธิ์ในการเข้าระบบและผู้ใช้งาน

##### 1. Operation

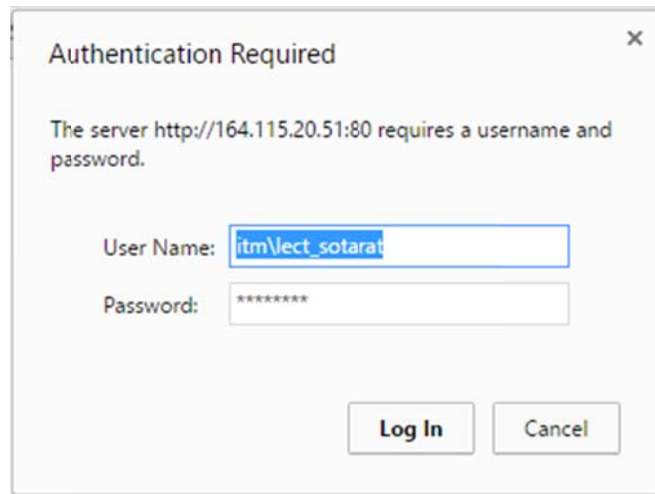
- a) Job assigner: กลุ่มของผู้ใช้งานที่สามารถให้งานและติดตามงาน
  - Default User ID : ITM\lect\_sotar
- b) Job receiver: กลุ่มของผู้ใช้งานที่ทำงานตามที่ได้รับมอบหมาย
  - Default User ID : ITM\staff1, ITM\staff1

##### 2. Maintenance

- a) System maintenance : กลุ่มของผู้ดูแลระบบ
  - Default User ID : ITM\jt\_admin

#### การเข้าใช้งานและเมนู (ส่วนผู้ใช้งานทั่วไป)

ผู้ใช้งานระบบสามารถเข้าถึงระบบติดตามงานได้จากทุกที่โดยใช้ web browser และกรอก URL [http://164.115.20.51/sites/job\\_tracking](http://164.115.20.51/sites/job_tracking) และทำการกรอก user และ password เพื่อทำการเข้าใช้ตามสิทธิ์



Authentication Required

The server http://164.115.20.51:80 requires a username and password.

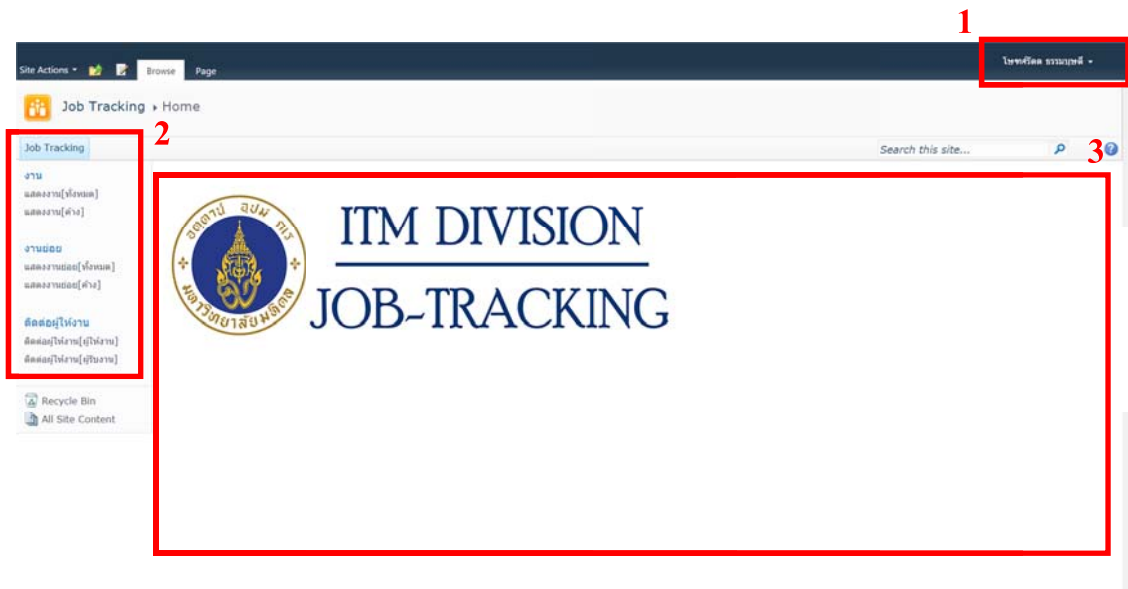
User Name: itm\Vect\_sotarat

Password: \*\*\*\*\*

Log In Cancel

หน้าจอสอบถาม user และ password

เมื่อทำการ log in สำเร็จระบบจะพามายังหน้าหลักเพื่อเตรียมพร้อมการใช้งาน



1

2

3

Job Tracking > Home

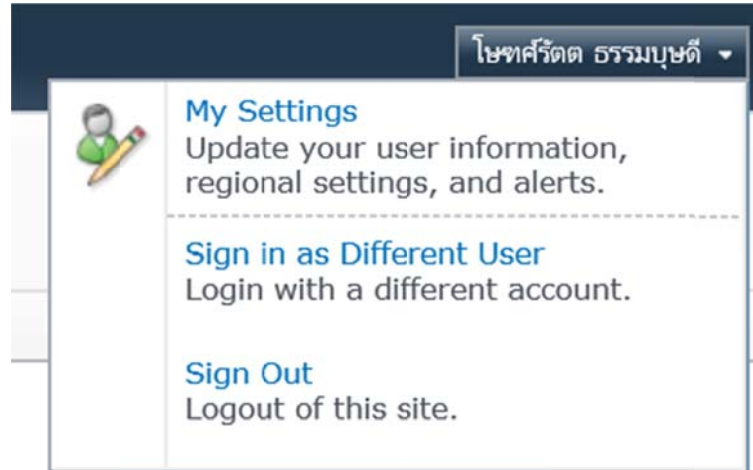
ITM DIVISION  
JOB-TRACKING

หน้าจอแสดงการทำงานหลัก

หน้าจอมือถือประกอบด้วย 3 ส่วน คือ

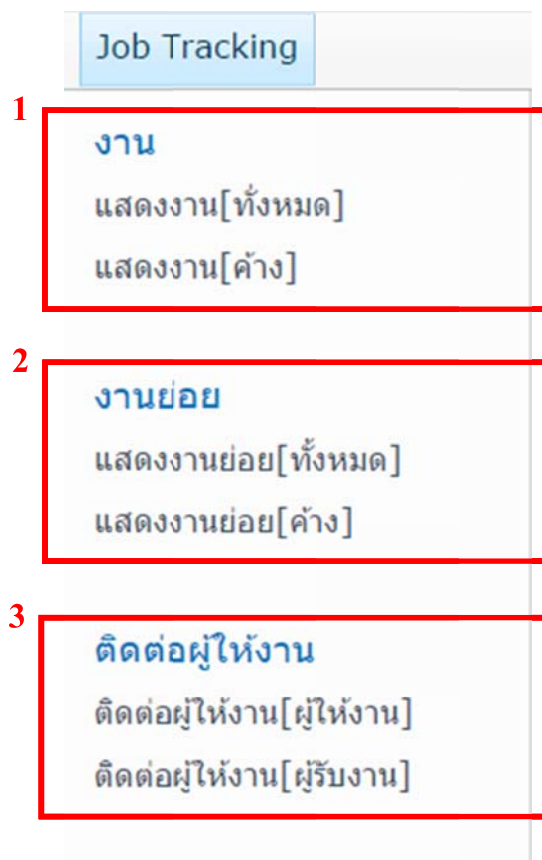
- 1) ส่วนจัดการข้อมูลผู้ใช้งาน
- 2) ส่วนจัดการระบบ
- 3) ส่วนแสดงผล

### ส่วนจัดการข้อมูลผู้ใช้งาน



### ส่วนจัดการข้อมูลผู้ใช้งาน

### ส่วนจัดการระบบ



### ส่วนจัดการระบบ

## ส่วนจัดการระบบจะแบ่งออกเป็น 3 ส่วนย่อย

### 1.1 ส่วนงาน: ใช้สำหรับแสดงข้อมูลของงาน

- แสดงงาน [ทั้งหมด]: แสดงงานที่เกี่ยวข้องกับ user ทั้งหมด
- แสดงงาน [ค้าง]: แสดงงานที่เกี่ยวข้องกับ user ที่มีความสำเร็จไม่ถึง

100%

### 1.2 ส่วนงานย่อย: ใช้สำหรับแสดงข้อมูลของงานย่อย

- แสดงงานย่อย [ทั้งหมด]: แสดงงานย่อยที่เกี่ยวข้องกับ user ทั้งหมด
- แสดงงานย่อย [ค้าง]: แสดงงานย่อยที่เกี่ยวข้องกับ user ที่มีสถานะ

เป็นรอดำเนินการ

### 1.3 ส่วนติดต่อผู้ใช้งาน: ใช้สำหรับติดต่อผู้ใช้งานในกรณีรายละเอียดของงานย่อยไม่

ถูกต้อง

- ติดต่อผู้ใช้งาน [ผู้ใช้งาน]: แสดงข้อมูลการติดต่อไปยังผู้ใช้งานซึ่งส่ง

จากผู้รับงานคนอื่น

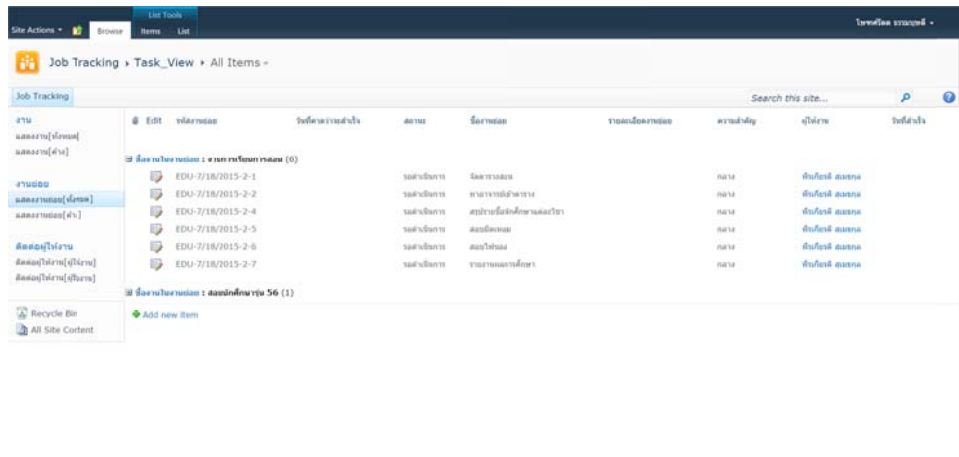
- ติดต่อผู้ใช้งาน [ผู้รับงาน]: แสดงข้อมูลการติดต่อไปยังผู้ใช้งานจาก

user ตนเอง

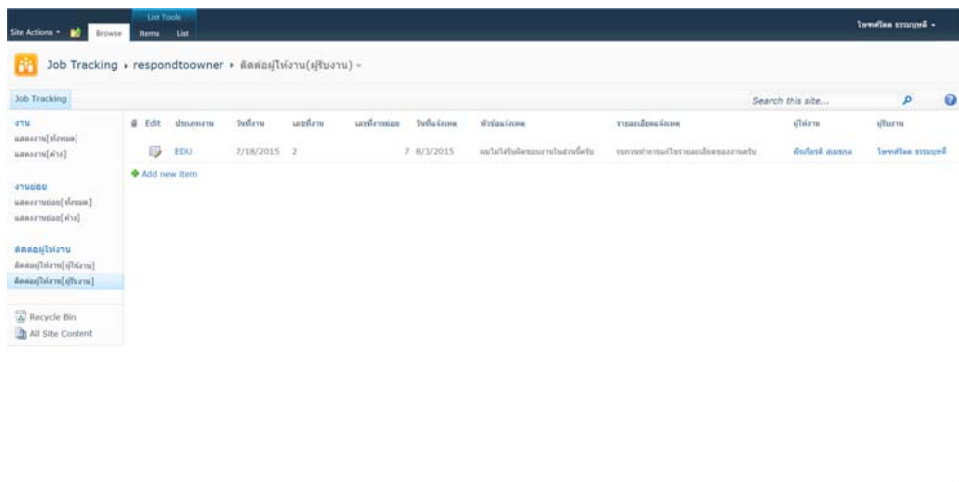
## ส่วนแสดงผล

งาน	สถานะ	ผู้รับงาน	วันที่ครบกำหนด
แสดงงาน [ทั้งหมด] แสดงงาน [ค้าง]	EDU-8/2/2015-4	สมมติศึกษา 56	วันที่ครบกำหนด: 56
Add new item			

ส่วนแสดงผลส่วนงาน



ส่วนแสดงผลส่วนงานย่อย

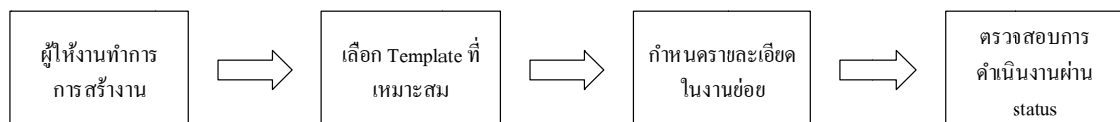


ส่วนแสดงผลส่วนติดต่อผู้ใช้งาน

### การใช้งานระบบ (ส่วนผู้ใช้งานทั่วไป)

การทำงานสำหรับผู้ใช้งานทั่วไปแบ่งออกเป็น 2 แบบ ดังนี้

#### 1. ผู้ใช้งาน



## 1.1 ผู้ใช้งานสามารถสร้างงานและเลือก template ได้ด้วยขั้นตอนดังนี้

1.1.1 เลือกแสดงงาน[ทั้งหมด]

1.1.2 เลือกไปที่ add new item

1.1.3 จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด

1.1.3.1 หัวข้องาน ให้กรอก ประเภทงาน วันที่ของงาน

เลขที่งาน (ห้ามซ้ำ)

1.1.3.2 วันที่เริ่มต้นของงาน

1.1.3.3 วันที่งานน่าจะสำเร็จ

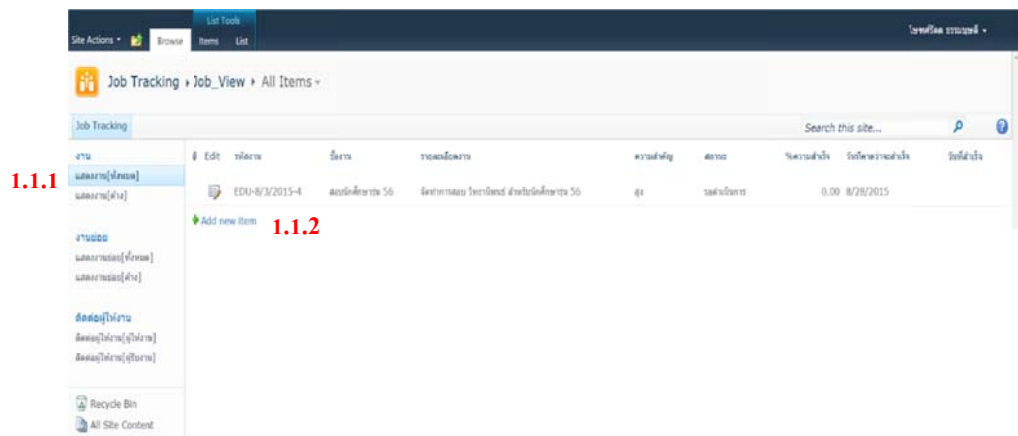
1.1.3.4 ความสำคัญของงาน

1.1.3.5 หัวข้องานต้นแบบ

1.1.3.6 ชื่อหัวข้องาน

1.1.3.7 รายละเอียดหัวข้องาน

1.1.3.8 แนบเอกสารแนบ



หน้าจอแสดงงานสำหรับสร้างงาน

หน้าจอ pop up สำหรับสร้างงาน

## 1.2 กำหนดรายละเอียดในงานย่อย

1.2.1 เลือกแสดงงานย่อย[ทั้งหมด]

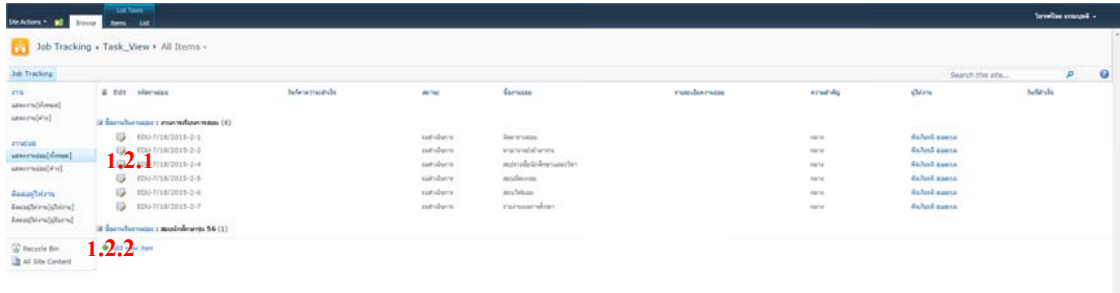
1.2.2 เลือก  เพื่อทำการกำหนดรายละเอียด

1.2.3 จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด

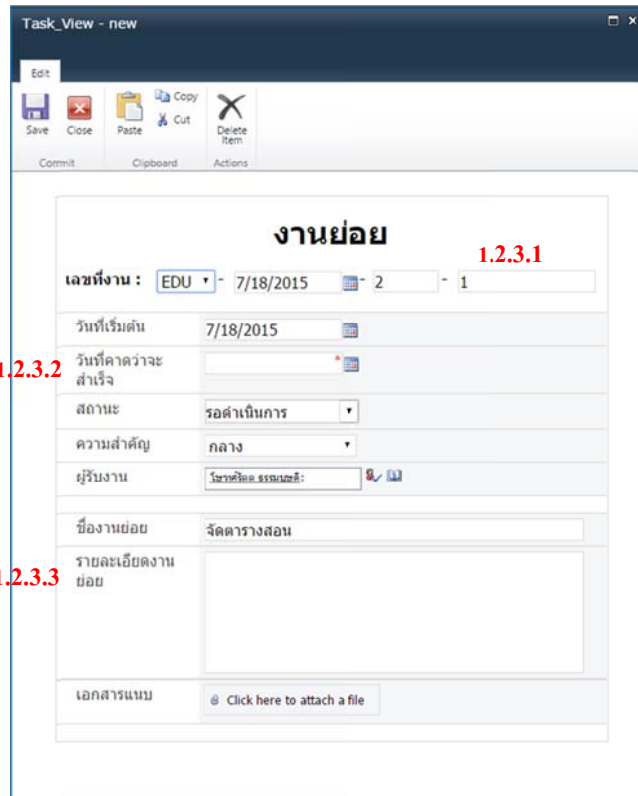
1.2.1.1 กำหนดเลขงานย่อย

1.2.1.2 ระบุวันที่คาดว่าจะงานจะสำเร็จ

1.2.1.3 ลงเนื้อหารายละเอียดงานย่อย

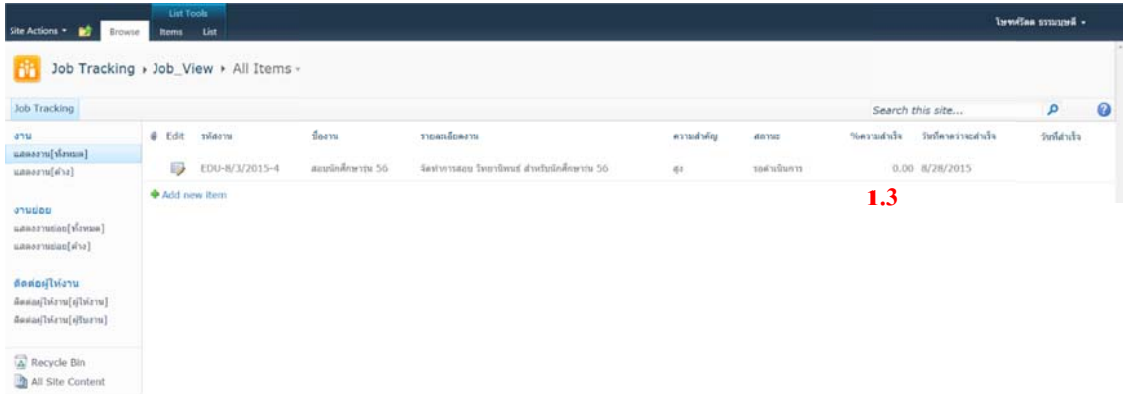


หน้าจองานย่อยสำหรับกำหนดรายละเอียด



หน้าจอ pop up งานย่อยสำหรับกำหนดรายละเอียด

### 1.3 ตรวจสอบการดำเนินงานผ่านสถานะ โดยดูว่าขึ้นดังกล่าวเป็น 100% หรือไม่




## 2. ผู้รับงาน

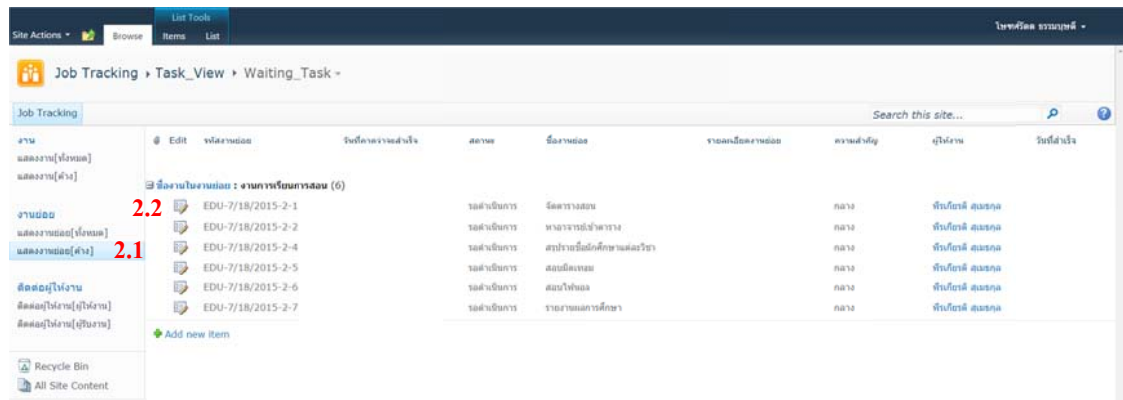
รับงานจากผู้ให้งาน

ปฏิบัติงานที่ได้รับมอบหมาย

Update status ของงานที่ได้รับมอบ

2.1 รับงานจากผู้ให้งาน โดยดูที่หน้าแสดงงานย่อย[ค้าง]

2.2 เลือก  หลังจากที่ได้ปฏิบัติงานที่ได้รับมอบหมายเสร็จสิ้นเพื่อทำการอัปเดตสถานะ

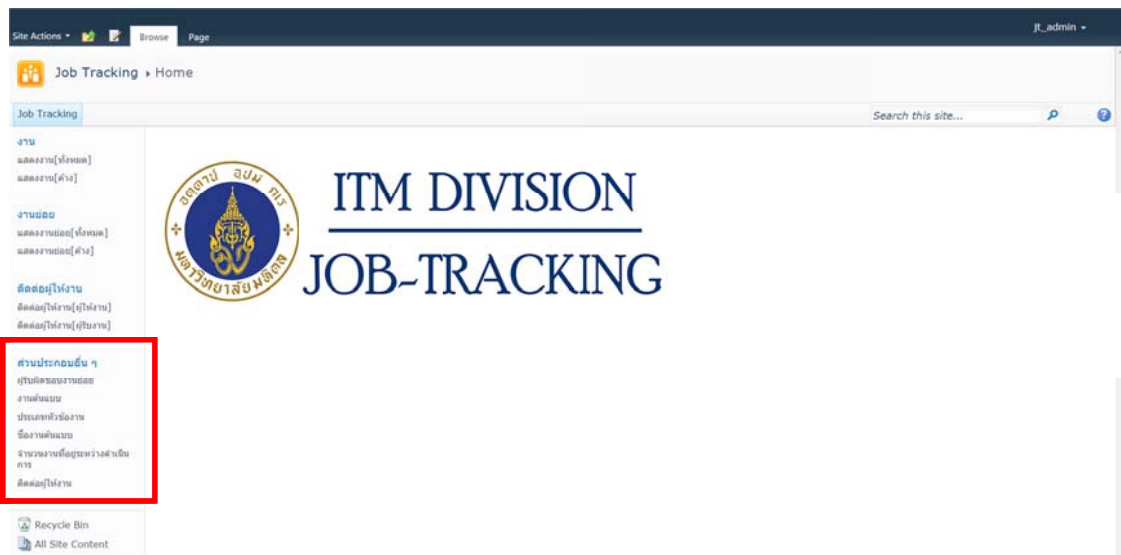


หน้าจางานย่อยสำหรับกำหนดรายละเอียด

### การใช้งานระบบ (ส่วนผู้ดูแลระบบ)

ผู้ดูแลระบบสามารถทำการเข้าถึงข้อมูลได้ทุกส่วน โดยสามารถทำงานผ่านส่วนประกอบอื่น ๆ ได้ ประกอบไปด้วย

1. ผู้รับผิดชอบงานย่อย
2. งานต้นแบบ
3. ประเภทหัวข้องาน
4. ชื่องานต้นแบบ
5. จำนวนงานที่อยู่ระหว่างดำเนินการ
6. ติดต่อผู้ให้งาน



หน้าจอหลักของ user admin

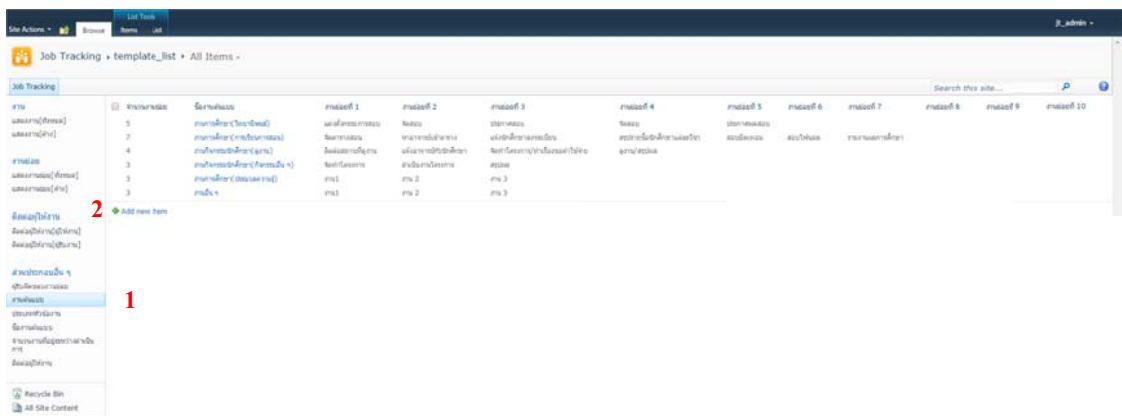
### กำหนดผู้รับผิดชอบงานย่อย

1. เลือกผู้รับผิดชอบงานย่อย
2. เลือก add new item
3. จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด
  - 3.1 กำหนดลำดับของงานย่อย โดยอ้างอิงจากเลขที่งานย่อย
  - 3.2 กำหนดผู้รับผิดชอบของงานย่อย
  - 3.3 กำหนดงานที่ต้องรับผิดชอบ



## กำหนดงานต้นแบบ

1. เลือกงานต้นแบบ
2. เลือก add new item
3. จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด
  - 3.1 กำหนดจำนวนงานย่อย
  - 3.2 กำหนดชื่องานต้นแบบ
  - 3.3 กำหนดงานย่อยจาก 1 – 10 ตามลำดับ



## หน้าจอกำหนดงานต้นแบบ

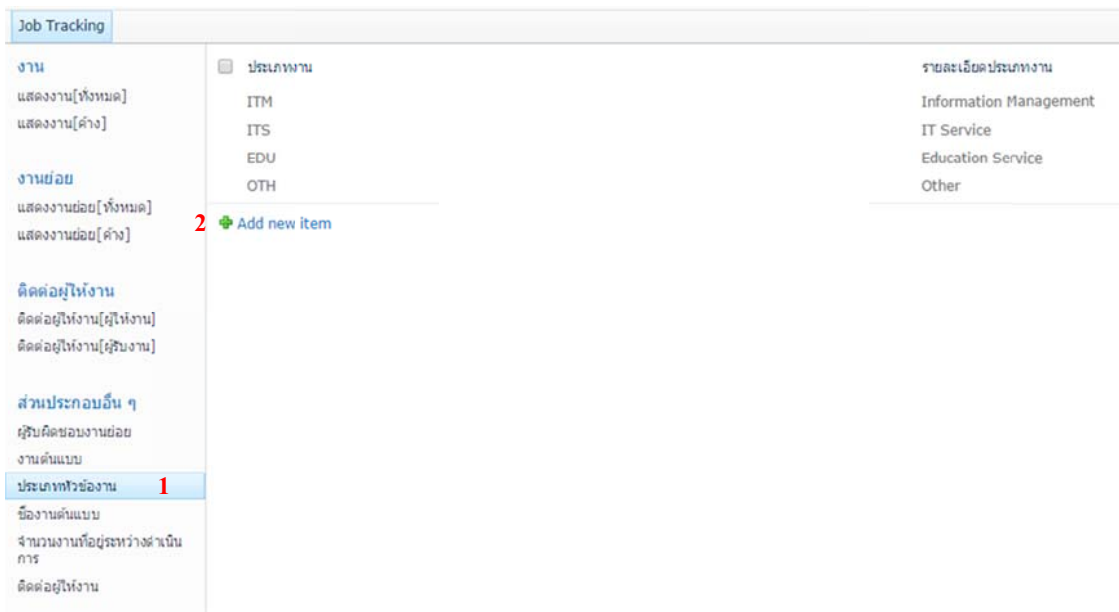
The screenshot shows the 'template\_list - New Item' form. It has a title bar and a menu bar with 'Edit', 'Save', 'Close', 'Paste', 'Copy', and 'Cut'. Below the menu bar, there are 'Commit' and 'Clipboard' buttons. The main form area is titled 'งานต้นแบบ' (Template) and contains the following fields:
 

- จำนวนงานย่อย (Number of Sub-works): A text input field, marked with a red '3.1'.
- ชื่องานต้นแบบ (Template Name): A dropdown menu, marked with a red '3.2'.
- งานย่อยที่ 1 through 10 (Sub-works 1 through 10): A list of 10 text input fields, marked with a red '3.3'.

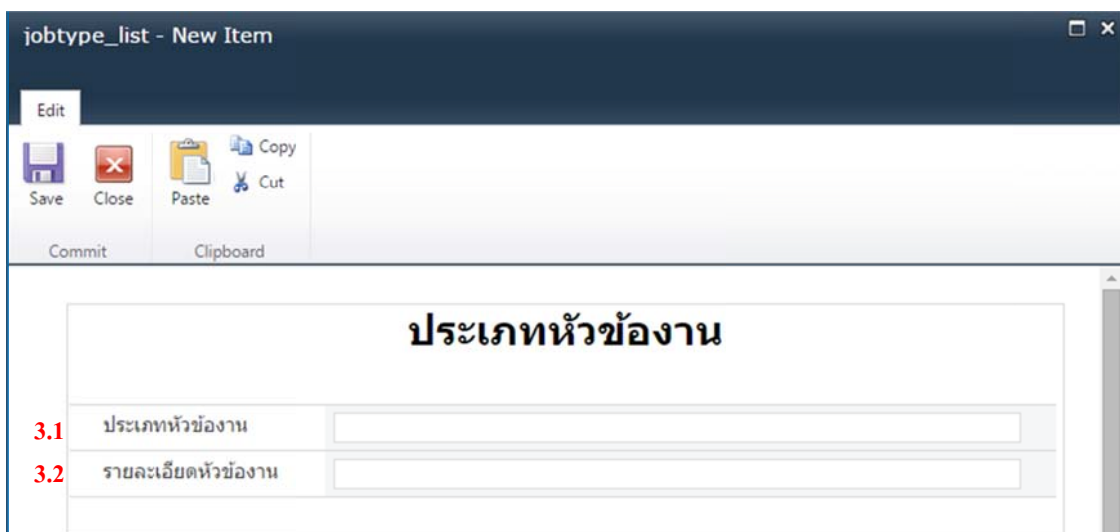
## หน้าจอ pop up กำหนดงานต้นแบบ

### กำหนดประเภทหัวข้องาน

1. เลือกประเภทหัวข้องาน
2. เลือก add new item
3. จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด
  - 3.1 ประเภทหัวข้องาน
  - 3.2 รายละเอียดหัวข้องาน



หน้าแสดงประเภทหัวข้องาน



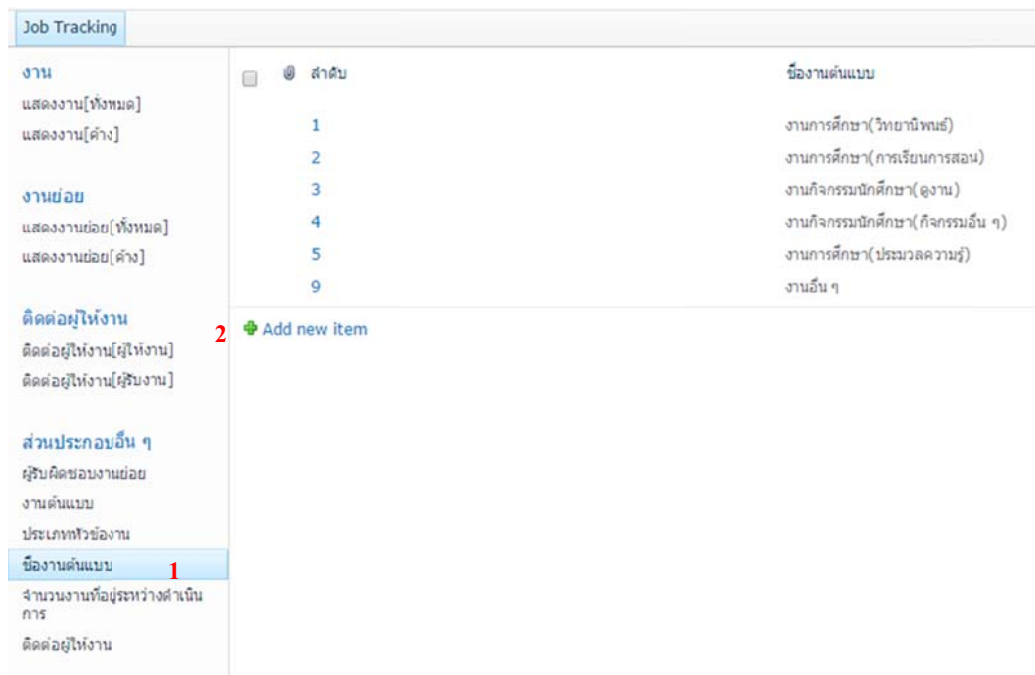
หน้าแสดง pop up ประเภทหัวข้องาน

## กำหนดชื่องานต้นแบบ

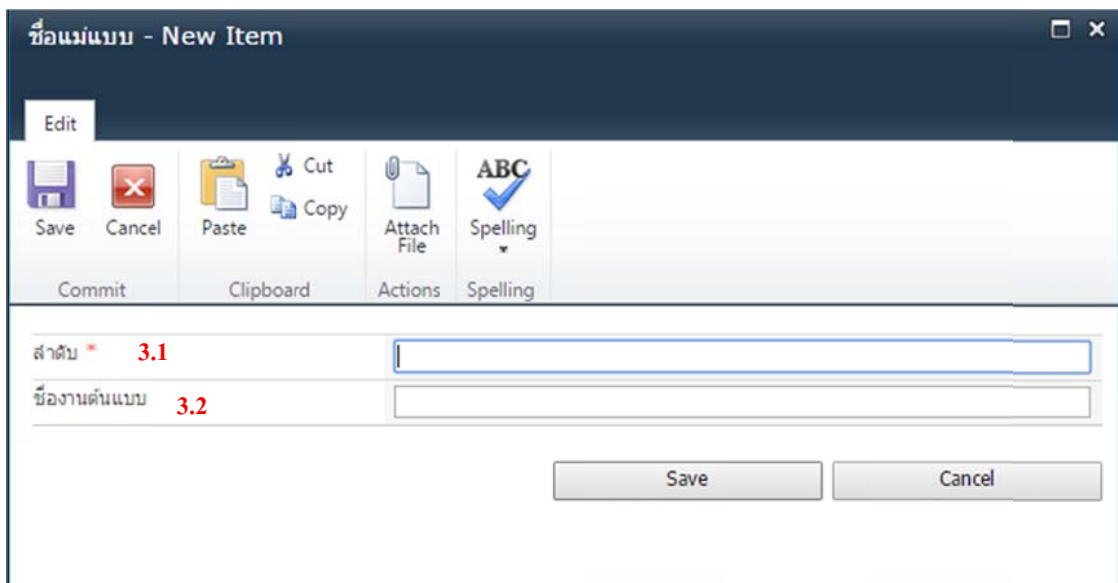
1. เลือกชื่องานต้นแบบ
2. เลือก add new item
3. จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด

### 3.1 ลำดับ

### 3.2 ชื่องานต้นแบบ



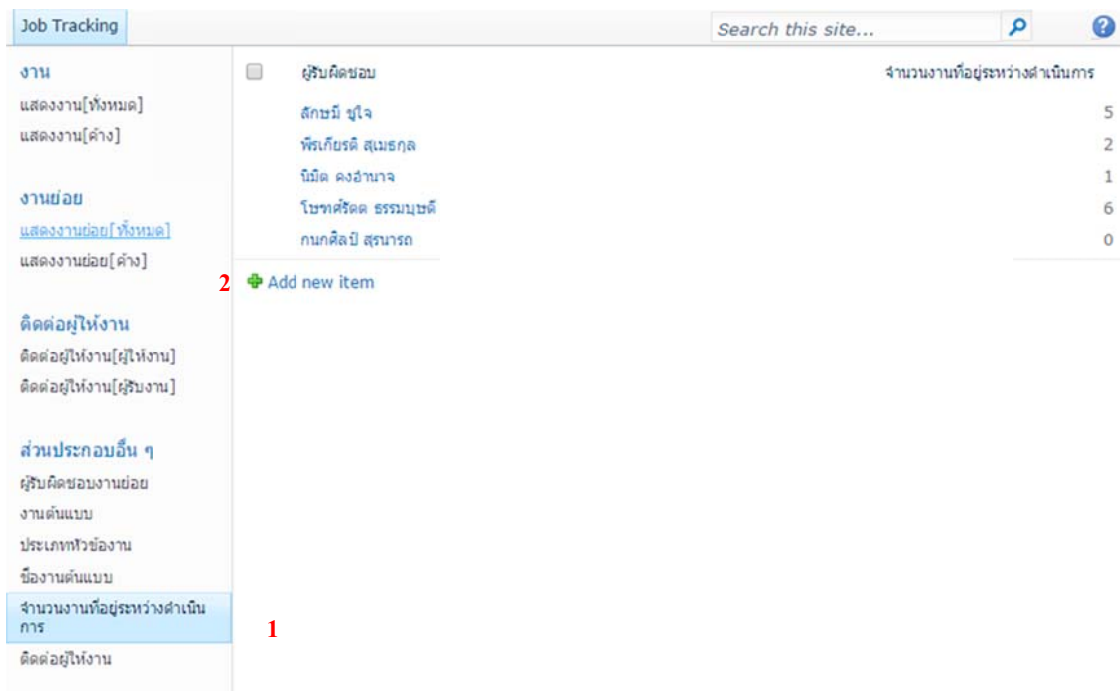
หน้าแสดงชื่องานต้นแบบ



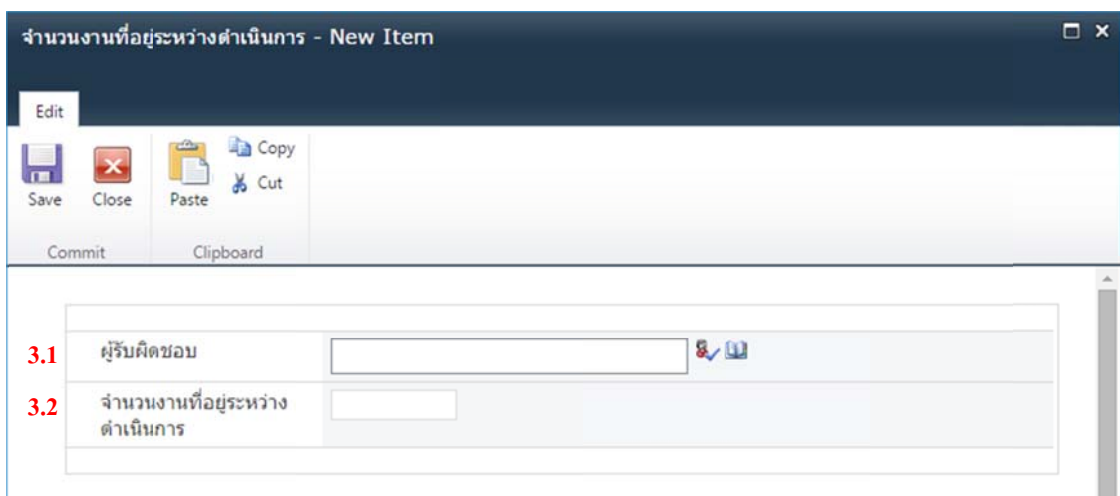
หน้าแสดง pop up ชื่องานต้นแบบ

### กำหนดจำนวนงานที่อยู่ระหว่างดำเนินการ

1. เลือกจำนวนงานที่อยู่ระหว่างดำเนินการ
2. เลือก add new item
3. จะมี pop up ขึ้นมา ให้ทำการกรอกรายละเอียด
  - 3.1 ผู้รับผิดชอบ
  - 3.2 จำนวนงานที่อยู่ระหว่างดำเนินการ



หน้าแสดงจำนวนงานที่อยู่ระหว่างดำเนินการ



หน้าแสดง pop up จำนวนงานที่อยู่ระหว่างดำเนินการ

**BIOGRAPHY**

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