MMIS 660 – Systems Analysis and Design

Group Assignment 1 – Project Planning

# Important Dates

* Due: September 26, 2016

# Overview

The purpose of this assignment is to introduce you and have you practice the tools and techniques for project planning. This assignment covers the functions that project managers use the most, including project scope, time management, cost management, baseline plan, project tracking, control.

# Case Background

As the head of information systems at Nova Southeastern University, you have been assigned the task of developing a new student registration system. The university wants to use a web-based 3-tier system to replace its legacy system that was developed based on mainframe technology. The new system will allow students to register for courses and view report cards online. Professors will be able to access the system to sign up courses that they wish to teach as well as to record student grades. In September 2016, project organizations were formed to develop the new system. In this assignment, we’ll focus on a small project team that was assigned to design and implement the new system.

The starting date of the project was set on 9/26/16. The project was roughly divided into five task categories:

* **Initiating Tasks:** This category consists of necessary tasks to start the project including: initial meeting with project sponsor, research similar projects, draft project requirements, develop a project charter.
* **Planning tasks:** This category includes all planning tasks: develop WBS (work breakdown structure), determine task relationships, estimate task duration, assign resources, enter cost information, review Gantt and PERT charts, and review plan with stakeholders.
* **Executing tasks:** This category includes tasks in a typical software development cycle: analysis, design and implementation.
* **Controlling tasks:** This category includes the following tasks: status reports, enter actual project performance, review reports, and “adjust plan, if needed”. The task “Status reports” is specified as a recurring task (i.e., a status report meeting would be held every Wednesday with duration of 1 hour).
* **Closing tasks:** The following tasks are involved in this category: prepare final project report, present the report to stakeholders, and prepare lessons learned.

Table 1 provides a description of the 30 tasks that were initially specified in the project’s scope definition stage.

Table – Work Breakdown Structure (WBS)

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Tasks** | **#** | **Tasks (Cont’d)** |
| 1 | Start Project | 16 | Review plan with stakeholders |
| 2 | Initiating tasks | 17 | Executing tasks |
| 3 | Initial meeting with project sponsor | 18 | Analysis tasks |
| 4 | Research similar projects | 19 | Design tasks |
| 5 | Draft project requirements | 20 | Implementation tasks |
| 6 | Review with sponsor and other stakeholders | 21 | Controlling tasks |
| 7 | Develop project charter | 22 | Status reports |
| 8 | Charter signed | 23 | Enter actuals |
| 9 | Planning tasks | 24 | Review reports |
| 10 | Develop WBS | 25 | Adjust plan, if needed |
| 11 | Estimate task duration | 26 | Closing tasks |
| 12 | Assign resources | 27 | Prepare final project report |
| 13 | Determine task relationships | 28 | Present final project to stakeholders |
| 14 | Enter cost information | 29 | Prepare lessons learned |
| 15 | Review Gantt and PERT chart information | 30 | End Project |
| **Note:** Task 22 (Status Reports) will later be changed to a recurring task.  |

Based on the scope definition and the WBS, Table 2 shows task duration estimates, and precedence relationships among the tasks (logic table). The unit of duration is number of days.

Table – Logic Table with Task Duration Estimates

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Task** | **Duration** | **Predecessors** |
| 1 | Start Project | 0d | - |
| 2 | Initiating tasks | - | 1 |
| 3 | Initial meeting with project sponsor | 1d | 1 |
| 4 | Research similar projects | 5d | 3 |
| 5 | Draft project requirements | 3d | 4 |
| 6 | Review with sponsor and other stakeholders | 1d | 5 |
| 7 | Develop project charter | 1d | 6 |
| 8 | Charter signed | 0d | 7 |
| 9 | Planning tasks | - | 8 |
| 10 | Develop WBS | 5d | 8 |
| 11 | Estimate task duration | 5d | 10 |
| 12 | Assign resources | 4d | 10 |
| 13 | Determine task relationships | 2d | 10 |
| 14 | Enter cost information | 3d | 10 |
| 15 | Review Gantt and PERT chart information | 1d | 13 |
| 16 | Review plan with stakeholders | 1d | 11,12,13,15 |
| 17 | Executing tasks | - | 16 |
| 18 | Analysis tasks | 20d | 16 |
| 19 | Design tasks | 30d | 18 |
| 20 | Implementation tasks | 20d | 19 |
| 21 | Controlling tasks | - | 8 |
| 22 | Status reports | - | 8 |
| 41 | Enter actuals | 60d | 8 |
| 42 | Review reports | 60d | 8 |
| 43 | Adjust plan, if needed | 1d | 8 |
| 44 | Closing tasks | - | 20 |
| 45 | Prepare final project report | 3d | 20 |
| 46 | Present final project to stakeholders | 1d | 45 |
| 47 | Prepare lessons learned | 2d | 46 |
| 48 | End Project | 0d | 47 |
| **Note:** Task 22 (Status Reports) is entered in MS Project as a recurring task.  |

There are four members in the team: Patricia Manning, the project manager; Steve Anderson, the systems analyst; David Aaker, the database analyst; and Isabel Newman, an intern. The pay rates (variable costs) of the team members are shown in Table 3. For the purpose of simplifying the assignment, assume that there were no fixed costs and the costs shown in Table 3 are the only costs incurred in the project.

Table – Pay Rate of Project Team Members

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Role** | **Resource Name** | **Initials** | **Group** | **Stand. Rate** | **Overtime Rate** |
| Project Manager | Patricia Manning | PM | 1 | $50.00/hr | $60.00/hr |
| Systems Analyst | Steve Anderson | SA | 1 | $40.00/hr | $50.00/hr |
| Database Analyst | David Aaker | DA | 1 | $40.00/hr | $50.00/hr |
| Intern | Isabel Newman | IN | 1 | $20.00/hr | $25.00/hr |

Assignments and time allocations of team members are provided in Table 4. We assume that the full-time members of the project team works 8 hours (work 8:00 am – 12:00 pm, lunch 12:00 pm – 1:00 pm, work 1:00 pm – 5:00 pm), 5 days a week (Monday – Friday), whereas the intern (Isabel Newman) only works half time (8:00 am – 12:00 pm; 5 days a week (Monday – Friday)). Ignore all holidays for the moment. The unit of resource allocation in Table 4 is percentage of a resource’s available time.

Table – Team Member Assignment

|  |  |  |
| --- | --- | --- |
|  |  | **Resources** |
| **#** | **Task** | **Patricia (PM)** | **Steve (SA)** | **David (DA)** | **Isabel (IN)[[1]](#footnote-1)** |
| 1 | Start Project |  |  |  |  |
| 2 | Initiating tasks |  |  |  |  |
| 3 | Initial meeting with project sponsor | 50 % | 50 % | 50 % |  |
| 4 | Research similar projects |  | 100 % |  |  |
| 5 | Draft project requirements | 50 % | 100 % |  |  |
| 6 | Review with sponsor and other stakeholders | 50 % | 50 % | 50 % |  |
| 7 | Develop project charter | 100 % |  |  |  |
| 8 | Charter signed |  |  |  |  |
| 9 | Planning tasks |  |  |  |  |
| 10 | Develop WBS | 25 % | 25 % | 25 % | 25 % |
| 11 | Estimate task duration | 25 % | 25 % | 25 % |  |
| 12 | Assign resources | 10 % |  |  |  |
| 13 | Determine task relationships | 10 % |  |  |  |
| 14 | Enter cost information |  |  |  | 50 % |
| 15 | Review Gantt and PERT chart information | 25 % |  |  |  |
| 16 | Review plan with stakeholders | 25 % | 25 % | 25 % | 25 % |
| 17 | Executing tasks |  |  |  |  |
| 18 | Analysis tasks |  | 75 % |  |  |
| 19 | Design tasks |  |  | 75 % |  |
| 20 | Implementation tasks |  |  | 75 % | 75 % |
| 21 | Controlling tasks |  |  |  |  |
| 22 | Status reports | 12.5 %[[2]](#footnote-2) |  |  |  |
| 41 | Enter actuals |  |  |  | 5 % |
| 42 | Review reports | 5 % |  |  |  |
| 43 | Adjust plan, if needed | 25 % |  |  |  |
| 44 | Closing tasks |  |  |  |  |
| 45 | Prepare final project report | 100 % | 100 % | 100 % | 100 % |
| 46 | Present final project to stakeholders | 100 % | 100 % | 100 % | 100 % |
| 47 | Prepare lessons learned | 100 % | 100 % | 100 % | 100 % |
| 48 | End Project |  |  |  |  |

## Task 1. Project Scope Management

Enter the tasks in MS Project as specified in Table 1. Set the project start date as 9/26/16. Specify the following tasks in the task list as summary tasks: task 2 (initiating tasks), task 9 (planning tasks), task 17 (executing tasks), task 21 (controlling tasks), and task 26 (closing tasks). Specify/identify the following tasks in the task list as milestones (duration equals zero): task 1 (start project), task 8 (charter signed), task 30 (end project). Specify task 22 (status report) as a recurring task - every Wednesday with duration of 1 hour.

## Deliverable

* Electronic file: 660\_yourgroupname\_scope.mpp
* Your team is ready to demonstrate how you develop this file.

## Task 2. Project Time Management

Enter duration estimate for each task as specified in Table 2. Then link the tasks according to the precedence relationships among the tasks. As you may have experienced in your own work, it is rare in real-world project management to wait until all of the analysis work is complete to start any design work or to wait for all of the design work to be complete before starting any implementation work. The team has decided to add a 10% lead time (or –10% lag time) to the design and implementation tasks.

## Deliverables

* On a separate page using a PPT file, answer the following questions:

Q1.2.1. What are the critical path activities?

Q1.2.2. When will each of the summary tasks finish (initiating, planning, executing, controlling, closing)?

Q1.2.3. When will each of the milestones be completed?

* Electronic file: 660\_yourgroupname\_time.mpp
* PPT file: your team is ready to demonstrate how you perform this task using the ppt file.

## Task 3. Project Resource/Cost Management

Enter resources according to Table 3. Assign resources to the tasks according to Table 4. Set a baseline of this.

## Deliverables

* Answer the following questions in the PPT file:

Q1.3.1. What are the costs to complete each of the summary tasks (initiating, planning, executing, controlling, closing)?

Q1.3.2. Up to 11/28/16, what are the cumulative cash flows for each of the summary tasks (initiating, planning, executing, controlling, closing)?

* Electronic file: 660\_yourgroupname\_baseline.mpp
* PPT file: your team is ready to demonstrate how you perform this task using the ppt file.

## Task 4. Enter Actuals and Conduct Earned Value Analysis (EVA)

We setup a baseline plan. Now some time has pass since the project started, it’s time to check on the progress, make any adjustment to our plan, and take necessary measures to keep our project on track. The methods we use to analyze project progress and to detect problems are called EVA – earned value analysis. As a follow-up of Part 1, Part 2 of the Assignment starts with the baseline file we created.

To reduce the scope of the assignment, we only enter the actuals for the activities under the first summary task (initiating). Assume that tasks 1, 3, 4, 6, 7, 8 were all completed on schedule. But task 5 was finished three days later than scheduled. Do an earned value analysis for the activities under initiating.

## Deliverables

* Answer the following questions[[3]](#footnote-3):

Q2.1.1. What are the BCWS, BCWP, ACWP, SV, CV, EAC, BAC, CPI and SPI for task 5? Briefly explain what do those numbers mean?

Q2.1.2. What are the BCWS, BCWP, ACWP, SV, CV, EAC, BAC, CPI and SPI for the summary task (initiating)? Briefly explain what do those numbers mean?

* Electronic file: 660\_yourgroupname\_control.mpp
* PPT file: your team is ready to demonstrate how you perform this task using the ppt file.

# Submission Instructions

Congratulations, you are almost done with the assignment. The final step is to submit it. **You must submit only the electronic versions of your team assignment to SharkLearn.**

**Submission instructions:**

* (1) MS Project file(s), and (2) a PPT file with answers to the questions. All files need to be zipped into a single archive. Name your zip file MMIS660\_groupname\_GA1.zip. Submit your zip file through the **SharkLearn** system, **Assignment** link under the folder of **Week 6**, **before class time** on September 26, 2016.
1. Since Isabel Newman (the intern) only works half-time (i.e., 20 hours a week), a work assignment of 100 % refers to working 20 hours (i.e., 100 % of her half-time appointment), instead of 40 hours (full time), a work assignment of 50 % refers to working 10 hours, etc. [↑](#footnote-ref-1)
2. This will be rounded to 13% in MS Project. [↑](#footnote-ref-2)
3. **Note:** BCWS (budgeted cost of work scheduled), BCWP (budgeted cost of work performed), ACWP (actual cost of work performed), SV (schedule variance), CV (cost variance), EAC (estimate at completion), BAC (budget at completion; baseline cost), CPI (cost performance index), SPI (schedule performance index). Use the MS Project Help facility to better understand what these metrics mean, how they are computed and how to interpret them. [↑](#footnote-ref-3)