FINAL EXAMINATION – June 2014

## name:

# Project Funding (4 points)

Determine the approximate mix of equity and debt sources of fund (debt leverage) required to finance a 10 million € B.O.T. project. The project is supposed to be operated over 10 year, with 1 million € annual expected cash flow (before repayment of debt interest and principal to the bank).

Assume that both cost of equity and cost of debt are 10% and that annual principal is 1/10 of initial debt funds. Fell free to make other reasonable financial assumptions, if required.

# Project Schedule (6 points)

As the leader of a software development project task-force, you are assigned the responsibility of preparing the initial original time schedule and indicate the possible optimal duration of the project, as well as the related budget.

All tasks are normally assumed to be performed by one single full-time person, as in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| **TASK** | **Predecessor** | **Duration** | **Resource** |
| Design |  | 20 days | analyst |
| Development | Design | 48 days | developer |
| Testing | Design | 60 days | tester |
| Pilot | Development, Testing | 8 days | user |
| Deployment | Pilot | 6 days | developer |

As an option, you may allocate up to 2 persons full-time on one or more tasks. In this case, the duration is ¾ time the normal duration.

Assumptions:

* unit cost of all human resources equals 1000,00€/day
* the project portion of corporate overhead is worth 1500,00€/day

# Performance Analysis and control (6 points)

Following is the performance of a sample project at the point in time the total actual work is 40 percent complete:

BCWS 800.000€

ACWP 500.000€

BCWP 600.000€

What kind of strategy approach should the project manager implement to control the project? Please provide some examples of possible control actions that could be undertaken to put the strategy into action.

## Small Project (6 points)

Pretend to be the project manager of a project to construct a new bridge crossing a river. You are asked to plan the project, define the network schedule, calculate the total duration by identifying the critical path, plot the usage profile for the resource “team”, and determine an approximate contingency budget (to prove you are able to apply an appropriate method, consider no more than 3 envisaged risks) .

The system is represented in the figure above.

Right bank

The scope of work is composed of the following tasks and associated durations, when performed by one team:

3

2

B

Left bank

A

1

Left bank A 2 months

Right bank B 3 months

Pile 1

Foundation 2 months

Pillar 1 month

Viaduct 2 months

Pila 2

Foundation 3 months

Pillar 1 month

Viaduct 3 months

Pila 3

Foundation 2 months

Pillar 1 month

Viaduct 2 months

You have no more than 4 teams to be used (maximum available units). All tasks can be performed by 1 or more teams (if you make use of more than 1 team to perform a single task, please consider a no loss of productivity. For example: 1 team takes 2 months; 2 teams take 1 month).