

THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
MASTER OF TECHNOLOGY IN INDUSTRIAL ENGINEERING – LEVEL 7
FINAL EXAMINATION – 2005/2006
MEX 7120 – PROJECT MANAGEMENT



DATE : 28 March 2006
TIME : 0930 hrs – 1230 hrs
DURATION: Three (03) hours

Answer any five (05) questions. All questions carry equal marks

1. (a) Explain the importance of the concept of "Order of magnitude cost estimation" in the context of project management. (5 marks)

(b) Name three methods of order of magnitude cost estimation and give examples to illustrate each method. (7 marks)

(c) Assuming that you are a Cost Engineering Consultant and one of your clients is a large Municipal Council. It was around 5.30 p.m. that you have returned after a meeting with the officials of the municipal council, where it transpired that the city was contemplating implementing a public housing apartment project with the objective of constructing 750 houses. At the end of the meeting the officials needed an order of magnitude estimate to be tabled at the meeting on the following day at 10.00 am with the Mayor of the Municipality Council.

A Junior Cost Engineer in your office compiled the following information to you.

The city has already completed another project to build 500 apartments at a total cost of Rs. 450 million. The order of magnitude cost factor for large public projects is 0.8. (Order of magnitude cost factor is defined as an approximate cost of a project without the benefits of detailed scope definition of the project.)

The preliminary sketches given to you by the city officials indicated that the design of the proposed structure in the new project would be similar to that of the recently completed project. The City Engineer indicated that the site conditions were also similar. What cost figure would you estimate and give to the officials?

State any assumptions you would make in the preparation of the estimate. (8 marks)

2. (a) What are the areas you should consider in conducting a feasibility study of a project? (5 marks)
- (b) Prepare a checklist, concerning the important questions raised in a technical analysis of a project on setting up of an eco-friendly hotel in a town, which is situated within the limits of the cultural triangle. (8 marks)
- (c) A contractor considers acquiring a piece of construction equipment that has an impact on the company's cash flow as shown below.

Year	Disbursement	Receipts
0	50,000	0
1	8,200	11,000
2	8,200	25,000
3	5,500	30,000
4	2,800	22,000

If money is worth 10%, what is the net present value of the project? Should the investment be made? (7 marks)

3. a) Explain three principle types of contracts and write short notes on each type giving advantages and disadvantages of each type. (12 marks)
- b) Discuss the importance of "Effective Contract Management practices" in Project Management. (8 marks)
4. (a) Assume that you have been appointed as the team leader of a group which is planning to visit a company in Japan with the task of a studying the host company. The Japanese company has the expertise that your group is interested to learn about. Identify the constituent activities and their sequence. Also explain how you estimate the time durations that each activity is required to take place. Show how you use forward and backward scheduling to achieve this task. Illustrate your plan using a bar chart or similar method.

- Note:
- i) Optimistic time – how long the activity would take if the conditions were ideal.
 - ii) Most probable time – that time if the conditions were 'Normal'
 - iii) Pessimistic time – how long the activity would take if a significant proportion of the things that could go wrong. (8 marks)

- (b) Assume that you are the brand manager of a company and you are assigned to organize a launching of a new product. The occasion would be to formally hold a press conference, where your managing director introduces the product and the press and major customers have the opportunity to witness the product for the first time. The formalities are to be proceeded by a buffet. Before hiring a catering service it is necessary to identify the guest list and invite them, to estimate the number of guests. Because of prior bookings with certain venues and the caterers, it was required you to first select the venue, and then select the caterers. The publicity materials to be used at the launch need to be designed, and the artwork carried out before brochures are printed. This material should be available on the day of the occasion. A display banner would be placed in the launch room once the publicity materials have been designed. No artwork is required for display banner. Once the venue is finalized a decision is to be taken regarding the hiring of a public address system.

The best estimates for optimistic, pessimistic and most likely times against the activities are given below. The Managing Director asks you to finalize the most suitable date for the launch.

Show the criteria that you have used in making the decision. Provide the network diagram.

Activity	Description time	Optimistic Time	Most Likely Time	Pessimistic Time
A	Select Launch Venue	1	2	3
B	Design launch publicity	2	3	4
C	Have artwork prepared	2	3	5
D	Print brochures	1	2	4
E	Construct promotion stand	1	2	3
F	Order sound system	0.5	1	1.5
G	Select caterers	1	2	3
H	Develop invite list	1	1	1
J	Invite and get replies	2	3	3

(all times are in weeks)

(12 marks)

5. a) Define the total factor productivity. (5 marks)
- b) Discuss how the following factors influence productivity of project tasks and as a Project Manager how you can face the challenges arising out of these factors..
- i) Value system of the time.
 - ii) Crew stability.
 - iii) Constructability of design.
 - iv) Use of Crash Scheduling
 - v) Point on learning curve.
- (7 marks)
- c) Assume that you are in the construction industry and your company is struggles to recover from a prevailing economic down turn. What could your employer do to motivate you and the other workers in your company to improve cash flow and profit? (8 marks)
6. a) Identify four key major processes with regard to Project Risk Management and explain each process. Describe the benefits from Project Risk Management. (6 marks)
- b) List out tools and techniques that can be used at each of the above four processes and elaborate on the selected four tools and techniques. (6 marks)
- c) Identify six major potential risk factors that Sri Lankan Government would be encountered with if the Public Railway Transport System in Sri Lanka is privatized. How would you advise the Sri Lankan government to manage the risk in the above scenario? (8 marks)
7. a) Name tools and techniques that could be used in project communication management and discuss the effective usage of them in a project which is at its implementation phase. (6 marks)
- b) A project manager who is responsible for implementation of a company wide employee performance appraisal uttered the following statement.
- “I don’t understand why they are so resistant and can’t see the benefits of the appraisal performance.” Explain this situation.
- If you were the project manager, how would you advise the company management to overcome the above situation? (14 marks)

“Project Management is becoming an emerging profession. Management by projects has become a strong alternative to the Operations Management of business”.

a) Discuss the skills and knowledge that one should possess to become a successful project Manager.

(12 marks)

b) State the primary objectives of Project Management and explain how they are interrelated.

(8 marks)