COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

MMS503 - PROJECT ANALYSIS AND MANAGEMENT (MBA)

END OF SECOND SEMESTER FINAL EXAMINATION

APRIL/MAY 2017

LECTURER: DR S. MURAIRWA

TIME: 3 HOURS

INSTRUCTIONS

Answer **All** questions.

Start **each** question on a new page in your answer booklet.

The marks allocated to **each** question are shown at the end of the question.

Show all your workings.

Credit will be given for logical, systematic and neat presentations.

1. Integration management and scope management: defining project success

   Background: When the executive committee made the final review of the project management methodology, they identified a lack of understanding of what would constitute project success. The recommendation was to establish some type of criteria that would identify project success.

   The meeting between the Vice President (VP) and Project Manager (PM):
   VP: "We have a problem with the identification of success on a project. We need more clarification."
   PM: "I assumed that meeting the deliverables specified by the customer constitute success."
   VP: "What if we meet only ninety-two percent of the specification? Is that a success or a failure? What if we overrun our new product development process but bring in more new customers? What if the project basically fails but we develop a good customer relationship during that process?"
   PM: "I understand what you are saying. Perhaps we should identify both primary and secondary contributions to success."

   Attempt the following questions:
   (a) What is the standard definition of success (i.e., primary factors)? How does this relate to the triple constraints?   [4 marks]
   (b) What would be two examples of secondary success factors?   [2 marks]
   (c) What would be a reasonable definition of project failure?   [2 marks]
   (d) Should these definitions and factors be included in a project management methodology? Explain your answer   [2 marks]
   (e) Are there any risks with inserting the primary and secondary success factors into the project methodology?   [2 marks]
   (f) Explain why the customer is the important stakeholder in a project   [4 marks]
   (g) State the advantages of a project milestone tracking chart   [5 marks]
   (h) With a well labelled diagram, explain project integration management [10 marks]

2. State the six criteria involved in project selection and evaluation process   [6 marks]

3. Describe how to prepare a checklist for project closedown   [8 marks]

4. Your organization is considering to run a project which will entail an investment of $1 000 000. The product from the project is forecasted to create revenues of $250 000 in the first year after the end of the project and $420 000 in each of the two following years. What is true for the net present value of the project over the three years cycle at a discount rate of 10%? Support your findings   [8 marks]

5. Construction of a new bridge
   a) State and explain the six phases of project management   [6 marks]
   b) One characteristic feature of projects is that their success is never guaranteed beforehand. Even if the desired goal is already being reached, it is uncertain whether it will be achieved within the available budget or within the proposed time. It is not unusual for a project to

take three times as long and to cost twice as much as originally estimated. It is also not unusual for only thirty per cent of the original project team members to be working on the project upon its completion. Although project managers must attend to many matters, they actually direct projects along only five parameters. State and explain the five parameters

[5 marks]

c) During the implementation of the project, briefly explain how the project manager works with the following stakeholders:
   i) Executive managers   [2 marks]
   ii) Vendor   [2 marks]
d) Explain how Crosby's quality philosophy can be used to enhance the acceptability of the project deliverable   [6 marks]

6. The table shows the activities, times and costs for a house project.

	Preceding	Time (Weeks)		Cost ($)	
		Normal	Crash	Normal	Crash
A	-	5	4	600	700
B	-	3	2	1 200	2 000
C	A	7	4	1 500	3 000
D	A	6	4	500	1 100
E	B	7	5	400	600
F	D, E	3	2	150	250
G	D, E	10	6	800	2 400
H	C,F	8	6	1 600	2 600

(a). Draw the network diagram and determine the critical path   [6 marks]
(b). How long will it take to complete the project   [2 marks]
(c). Can activity D be delayed? If so, by how many weeks?   [2 marks]
(d). What is the schedule for activity E?   [4 marks]
(e). Formulate a linear programming model for the optimal crashing decision to meet a 19 week deadline.   [12 marks]

End of paper

1. $K = \dfrac{C_c - C_n}{M}$

2. $M = T_n - T_c$

3. Let:
   o = optimistic time estimate
   m = most likely time estimate
   p = pessimistic time estimate

   $Mean\ (Expected\ Time): t = \dfrac{o + 4m + p}{6}$

   $Variance: \sigma^2 = \left(\dfrac{p - o}{6}\right)^2$

4. Social cost = Private costs + Negative Externalities

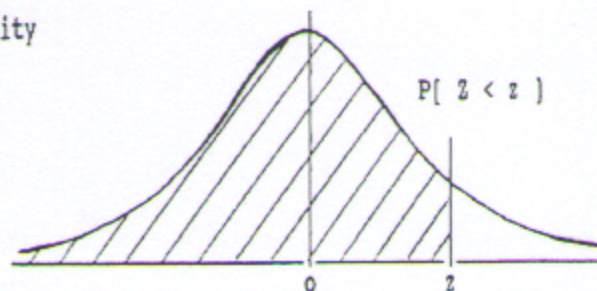5. Social benefit = Private benefits + Positive externalities

6. $Z = \dfrac{x - \mu}{\sigma}$

STANDARD STATISTICAL TABLES

1. Areas under the Normal Distribution

The table gives the cumulative probability
up to the standardised normal value z
i.e.

$$P[\ Z < z\ ] = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} \exp(-\tfrac{1}{2}Z^2)\ dZ$$

P[Z < z]

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5159	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7854
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8804	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9773	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9865	0.9868	0.9871	0.9874	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9924	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9980	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986

z	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90
P	0.9986	0.9990	0.9993	0.9995	0.9997	0.9998	0.9998	0.9999	0.9999	1.0000