Xi'an Jiaotong-Liverpool University 西交利物浦大学

| PAPER CODE | EXAMINER | DEPARTMENT | TEL |
|---|---|---|---|
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**2nd SEMESTER 2018/2019**

**Assessed Coursework**

# Fundamentals of Project Management

**SUBMISSION DEADLINE: 20th May 2019**

## INSTRUCTIONS TO CANDIDATES

(1) The assignment comprises **35%** weight of the final module mark.

(2) This assignment consists of four (4) parts: A, B, C and D. Each section has more detailed instructions.

(3) All answers must be in English only and consist of full sentences, bullet points are not acceptable.

(4) The electronic copy (in MS Word, **not** PDF) of the report must be submitted via ICE before the deadline. **All essays will be processed through Turnitin for a plagiarism and originality check. Please refer to the corresponding policies! Paper copies are not required.**

(5) Where indicated ProjectLibre files must be produced and submitted seperately via ICE.

(6) University policy on late submission will be followed.

(7) Ensure that you comply with file naming and formatting conventions; a cover sheet is not required.

(8) The feedback and general marking criteria are following on the next 2 pages.

(9) Good luck.

**This page intentionally blank for feedback!**

**General marking criteria:**

All questions have their respective marks attached in brackets, e.g. (10).

Do not copy and paste the book or other student's answers. All answers must be coming from yourself, citing appropriate references where applicable.

Basic answers will account for 50-60% of the marks for the answer, more elaborate answers will connect the topic with other areas of Project Management, linking theory to practice (examples) and explain the connections in detail. For full marks appropriate references must be chosen and cited using APA style referencing. The use of a reference manager is advised.

Marks will be deducted for improper formatting (see handbook)!

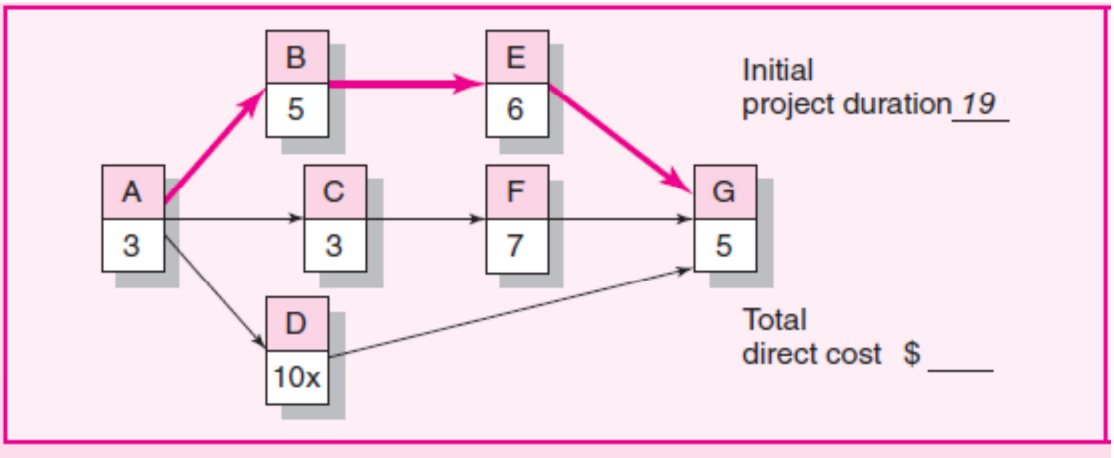
## Section A Selective Questions (10 marks)

As a starter please find below four (4) questions. You must complete **two** out of four. Each question is worth five (5) marks.

1. On the 51st day of Project X, the team records show an earned value of 600, an actual cost of 650 with planned costs of 650. Calculate SV, CV and CPI. What is your assessment of this Project?

2. Assume the following project network as well as data and calculate the total direct cost for each Project duration. Calculate total cost when indirect costs are 400 (19 time units), 350 (18 time units), 300 (17 time units) and 250 (16 time units). Plot the total, direct and indirect costs for each duration (table). What is the optimum time/cost schedule?

| Act. | Crash Cost (Slope) | Maximum Crash Time | Normal Time | Normal Cost |
|---|---|---|---|---|
| A | 20 | 1 | 3 | 50 |
| B | 60 | 2 | 5 | 60 |
| C | 40 | 1 | 3 | 70 |
| D | 0 | 0 | 10 | 50 |
| E | 50 | 3 | 6 | 100 |
| F | 100 | 3 | 7 | 90 |
| G | 70 | 1 | 5 | 50 |
| | | | | $470 |



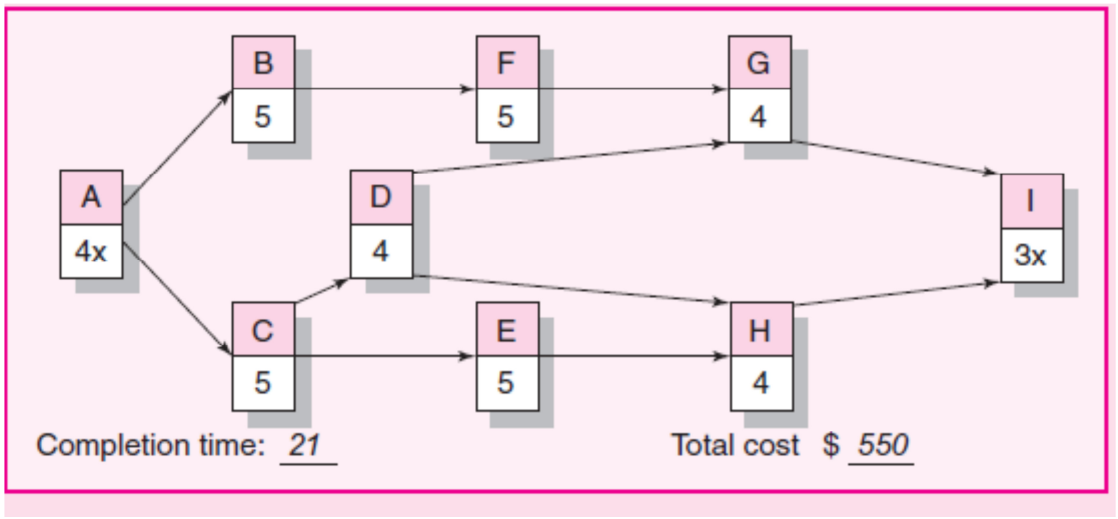
3. The XJTLU Football Tournament Project team has identified the following risks for their upcoming Tournament:

   a. Referees failing to show up
   b. Fighting between teams
   c. Match decisive error by referee
   d. Abusive behaviour by parents at the sidelines
   e. Insufficient parking
   f. Not enough teams signing up
   g. Serious injury of a player

   How do you suggest XJTLU should respond to each hazard and why? Develop a full Risk-Response Matrix.

4. Use the following information to compress the project by 1 time unit per step using the least cost method. Justify each step and develop an overall table showing direct, indirect, total cost as well as the change in cost.

| | | | Direct Costs | | | |
|---|---|---|---|---|---|---|
| | | | Normal | | Crash | |
| Activity ID | Slope | Maximum Crash Time | Time | Cost | Time | Cost |
| A | — | 0 | 4 | $50 | 0 | — |
| B | $40 | 3 | 5 | 70 | 2 | $190 |
| C | 40 | 1 | 5 | 80 | 4 | 120 |
| D | 40 | 2 | 4 | 40 | 2 | 120 |
| E | 40 | 2 | 5 | 60 | 3 | 140 |
| F | 40 | 1 | 5 | 50 | 4 | 90 |
| G | 30 | 1 | 4 | 70 | 3 | 100 |
| H | 30 | 1 | 4 | 80 | 3 | 110 |
| I | — | 0 | 3 | 50 | 0 | — |
| Total direct normal costs—$550 | | | | | | |


A
4x
B
5
C
5
D
4
E
5
F
5
G
4
H
4
I
3x
Completion time: 21
Total cost $ 550

## Section B Essay Question (30 marks)

Write a brief (800 – 1,000 words) essay on the following topic:

Why are traditional Project Management and its Methodologies less effective when running a Greenfield Project? (10) What particular tool could be employed to improve scheduling and budgeting? (4) Can you graphically explain it (4) and highlight the reason why (2)?

## Section C Case Study (30 marks).

### Cerberus Project Part A

You are the assistant project manager to Kelly Brown, who is in charge of the Cerberus project. Cerberus was the code name given to the development of a handheld electronic medical reference guide. Cerberus would be designed for emergency medical technicians and paramedics who need a quick reference guide to use in emergency situations.

Kelly and her project team were developing a project plan aimed at producing 30 working models in time for MedCON, the biggest medical equipment trade show each year. Meeting the MedCON October 25$^{th}$ deadline is critical to success. All the major medical equipment manufacturers demonstrated and took orders for new products at MedCON. Kelly had also heard rumors that competitors were considering developing a similar product, and she knew that being first to market would have a significant sales advantage. Besides, top management made funding contingent upon developing a workable plan for meeting the MedCON deadline.

The project team spent the morning working on the schedule for Cerberus. They started with the WBS and developed the information for a network, adding activities when needed. Then the team added the time estimates they had collected for each activity. Following page shows the preliminary information for activities with duration time and predecessors:

| Activity | Description | Duration | Predecessor |
|---|---|---|---|
| 1 | Architectural decisions | 10 | None |
| 2 | Internal specifications | 20 | 1 |
| 3 | External specifications | 18 | 1 |
| 4 | Feature specifications | 15 | 1 |
| 5 | Voice recognition | 15 | 2,3 |
| 6 | Case | 4 | 2,3 |
| 7 | Screen | 2 | 2,3 |
| 8 | Speaker output jacks | 2 | 2,3 |
| 9 | Tape mechanism | 2 | 2,3 |
| 10 | Database | 40 | 4 |
| 11 | Microphone/soundcard | 5 | 4 |
| 12 | Pager | 4 | 4 |
| 13 | Barcode reader | 3 | 4 |
| 14 | Alarm clock | 4 | 4 |
| 15 | Computer I/O | 5 | 4 |
| 16 | Review design | 10 | 5,6,7,8,9,10,11,12,13,14,15 |
| 17 | Price components | 5 | 5,6,7,8,9,10,11,12,13,14,15 |
| 18 | Integration | 15 | 16,17 |
| 19 | Document design | 35 | 16 |
| 20 | Procure prototype components | 20 | 18 |
| 21 | Assemble prototypes | 10 | 20 |
| 22 | Lab test prototypes | 20 | 21 |
| 23 | Field test prototypes | 20 | 19,22 |
| 24 | Adjust design | 20 | 23 |
| 25 | Order stock parts | 15 | 24 |
| 26 | Order custom parts | 2 | 24 |
| 27 | Assemble first production unit | 10 | 25, FS—8 time units<br>26, FS—13 time units |
| 28 | Test unit | 10 | 27 |
| 29 | Produce 30 units | 15 | 28 |
| 30 | Train sales representatives | 10 | 29 |

Use Project Libre to develop the schedule for activities (see Case Appendix for further instructions)—noting late and early times, the critical path, and estimated completion for the project.

***Save your output as Part A and use it as a baseline for Part B.***

**Cerberus Project Part B**

Kelly and the team are concerned with the results of your analysis. They spent the afternoon brainstorming ways for shortening the project duration. They rejected outsourcing activities because most of the work was developmental in nature and could only be done in-house.

They considered altering the scope of the project by eliminating some of the proposed product

features. After much debate, they felt they could not compromise any of the core features and be successful in the marketplace. They then turned their attention to accelerating the completion of activities through overtime and adding additional technical manpower. Kelly had built into her proposal a discretionary fund of $200,000.

She was willing to invest up to half of this fund to accelerate the project, but wanted to hold onto at least $100,000 to deal with unexpected problems. After a lengthy discussion, her team concluded that the following activities could be reduced at the specified cost:

• Development of voice recognition system could be reduced from 15 days to 10 days at a cost of $15,000.
• Creation of database could be reduced from 40 days to 35 days at a cost of $35,000.
• Document design could be reduced from 35 days to 30 days at a cost of $25,000.
• External specifications could be reduced from 18 days to 12 days at a cost of $20,000.
• Procure prototype components could be reduced from 20 days to 15 days at a cost of $30,000.
• Order stock parts could be reduced from 15 days to 10 days at a cost of $20,000.

Clark, a development engineer, pointed out that the network contained only finish-to-start relationships and that it might be possible to reduce project duration by including leads and lags. For example, he said that his people would not have to wait for all of the field tests to be completed to begin making final adjustments in the design. They could start making adjustments after the first 15 days of testing. The project team spent the remainder of the day analyzing how they could introduce leads and lags into the network to hopefully shorten the project.

They concluded that the following finish-to-start relationships could be converted into lags:

- Document design could begin 5 days after the start of the review design.
- Adjust design could begin 15 days after the start of field test prototypes.
- Order stock parts could begin 5 days after the start of adjust design.
- Order custom parts could begin 5 days after the start of adjust design.
- Training sales representatives could begin 5 days after the start of test unit and

completed 5 days after the production of 30 units.

As the meeting adjourns, Kelly turns to you and tells you to assess the options presented and try to develop a schedule that will meet the October 25th deadline. You are to prepare a report to be presented to the project team that addresses the following question:

**CASE APPENDIX: TECHNICAL DETAILS**

Create your project schedule and assess your options based on the following information:

1. The project will begin the first working day in January, 2019.
2. The following holidays are observed: January 1, Memorial Day (last Monday in May), July 4, Labor Day (first Monday in September), Thanksgiving Day (fourth Thursday in November), December 25 and 26.
3. If a holiday falls on a Saturday, then Friday will be given as an extra day off; if it falls on a Sunday, then Monday will be given as a day off.
4. The project team works Monday through Friday.
5. You can only spend up to $100,000 to reduce project activities; lags do not incur any additional costs.

**Save your result as Project Libre File Part B and answer the following questions:**

1. Comment on the final Project Plan as a Risk Manager. (7 marks)
2. Comment on the final Project Plan from a Corporate Strategy perspective. (7 marks)
3. Complete a full Project Evaluation as a Head of PMO. What is your advice for the CEO? You are not tied to any of Rachel's previous considerations! (16 marks)

## Section D Project Proposal (30 marks)

Propose a Project to XJTLU **(not your group Project!)** and prepare a full Proposal including Business Case and Benefit Analysis. Your document should be Boardroom ready, meaning you are comfortable giving this and presenting it to the Executive President.

**-----END OF PAPER-----**