Corrections to Project Management: Processes, Methodologies, and Economics

Note: most corrections highlighted in **bold** font.

Chapter 3

1. Page 80, first equation \((P/A_1, g, i, n)\). Denominator should be \(i - g\).

2. Page 81, Example 3-1; solution should be:
   (a) We demonstrate a slightly different way to get the same answer as in Example 3.1.
   \[ A = [-20K + 4K(P/F, 15\%, 5)](A/P, 15\%, 5) \]
   \[ = [-20K + 4K(0.4972)](0.2983) = -5,373 \]
   (b) \( P = -5,373(P/A, 15\%, 20) \)
   \[ = -5,373(6.2593) = -33,629 \]

3. Page 86. Equation should be: \(i' = 0.04 + 0.05 + 0.04 \times 0.05 = 0.092\) or 92%

4. Page 102, last paragraph:
As an example, consider Fig. 3.7, depicting the relation of IRR to NPV for two projects, X and Y. The IRR for each project is the interest rate at which the NPV for that project is zero. This is shown for a nominal MARR. For the hypothetical but quite feasible relationship shown in Fig. 3.7, project Y has the higher IRR, whereas project X has the higher NPV for all interest rates to the left of the intersection of the two curves (e.g., see the nominal MARR in the figure). IRRs except for the rate at which the net present values are equal.

4. Page 103: Figure 3.7 needs to be corrected. The arrows from IRR(X) and IRR(Y) should point to the intersection of the respective curves and the horizontal axis. The arrows from NPV(X) and NPB(Y) should point to the respective intersections of the dashed lines and the vertical axis. Corrected version below. Note where all arrows point.

Figure 3.7 (Corrected) Relationship between NPV and IRR for independent investments

5. Page 145, Exercise 3.38, line 2. Should be “… only a 1 chance in 10 that the stock price would drop below $6 per share …”

Chapter 4

1. Page 148, Table 4.1: Entry (Operations, Refrigerators) should be $392.

2. Page 167, *Design evaluations*, line 3: The LCC model combined with a measure of system effectiveness produces …
3. Page 170, Exercise 4.9. Change part (b) to:

(b) Develop a general model (i.e., NPV equation) that can be used to calculate the LCC for a car based on a nominal interest rate $i\%$. Define any new notation and state any assumptions you make. Note that the car insurance is paid in two installments per year.

Chapter 5

Exercise 5.1, page 221. Change to:

5.1 “Consider an important decision with which you will be faced in the near future and propose two or three alternatives. Construct a scoring model detailing your major criteria and assign weights to each. Indicate which data are known for sure and which are uncertain. What can be done to reduce the uncertainty? Finally, use your scoring model to rank the alternatives.”

Exercise 5.9, page 224. In the last paragraph, change the second sentence to:

“Use the annual worth method to account for the time value of money and base your answer on the individual B/C ratio of each alternative.”

Exercise 5.13: Change to:

5.13 As chief industrial engineer in a manufacturing facility, you are contemplating the replacement of the spreadsheet procedures that are now being used for production scheduling and inventory control with a material requirements planning system. Two options are available. You can do it all at once and throw out the old system (call this option A) or you can implement the new system in two phases, where phase 2 would begin a year from now (call this option B). Assume that the benefits of either option depend on the state of the economy during the upcoming year, which may be “good” or “bad” with probabilities 0.7 and 0.3, respectively. If you choose option B, you will need to make a second decision after a year regarding the implementation of phase 2. At that point, the benefits, once again, will depend on whether the economy is forecast to be good or bad in the future. The same probabilities apply. Using the data in the table below, construct a decision tree for the problem.
<table>
<thead>
<tr>
<th>Option</th>
<th>Cost</th>
<th>Benefits if good economy</th>
<th>Benefits if bad economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: replace</td>
<td>$100,000</td>
<td>$200,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>B: phase 1</td>
<td>$50,000</td>
<td>$80,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>B: phase 2</td>
<td>$75,000</td>
<td>$125,000</td>
<td>$65,000</td>
</tr>
<tr>
<td>B: no phase 2</td>
<td></td>
<td>$25,000</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

Exercise 5.17, page 226. Change last sentence of problem statement to:
“The reliability of her forecasts based on previous assignments is provided by the following table of conditional probabilities; that is, \( p(\text{forecast} \mid \text{demand}) \).”

Appendix 5A, page 231. Equation (5A.1) should be

\[
P(S_i \mid X) = \frac{P(X, S_i)}{\sum_{j=1}^{n} P(X \mid S_j) P(S_j)}
\]

Chapter 6

1. Page 247, line 4. The equation should be \( A_i w = \lambda w_i \).

2. Page 88 in solution manual; Exercise 6.4: The comparison matrix for the three major factors with respect to the cost objective should be as follows.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Priorities</th>
<th>Output parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Labor</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>0.766</td>
<td>( \lambda_{\text{max}} = 3.151 )</td>
</tr>
<tr>
<td>2. Training</td>
<td>1/7</td>
<td>1</td>
<td>3</td>
<td>0.158</td>
<td>CI = 0.0754</td>
</tr>
<tr>
<td>3. Taxes</td>
<td>1/7</td>
<td>1/3</td>
<td>1</td>
<td>0.076</td>
<td>CR = 0.130</td>
</tr>
</tbody>
</table>

Chapter 10

1. Page 469, Resource utilization: … For example, if 12 labor-days are available each week and the project duration is 22 weeks, a total of \( 12 \times 22 = 264 \) resource days are available. Because only 196 days are used to perform all of the project's activities, the utilization of this resource is \( 196/264 = 0.74 \)…

Chapter 12

1. Page 526, Figure 12.4: Department activities A, B, …, G should be reversed, as shown below.
2. Page 545: In table for row C, change –10 to 10 in last column as shown.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>LOB</th>
<th>Actual</th>
<th>Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>80</td>
<td>–10</td>
</tr>
<tr>
<td>B</td>
<td>60</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Thus, **milestones A and C** are milestone A is late with respect to the MPS.