JAF02 Unit 9 Technology in Use II

Task 1 Speaking - Mission to Mars

In pairs, discuss the history and future of missions to Mars, their purpose, political context, expectations, etc.

Task 2 Discussing technical requirements

a) Needs analysis (also called requirement analysis / gap analysis) is finding out what the requirements are for a new project by looking at all the factors that are involved and how they will interact**.**

In pairs, discuss why the following factors are important in the needs analysis, giving examples of products and installations.

budget capacity dimensions layout looks performance regulations timescale

b) Claudia, an engineer, is asking Kevin and Dave, the managers of a fun park, about their requirements for a proposed space module simulator called *Mars lander*. Listen to the conversation and note the three main areas Claudia asks about. (6.1)
1 _____ 2_____ 3 _____

c) How do Claudia and Kevin focus on specific subjects? Complete the following phrases from the conversation using the words below. Listen again and check your answers.
concerned regard regarding regards terms
1. … with _____ to the capacity …
2. … in _____ of the number of people…
3. … as far as size is _____ .
4. … And as _____ the graphics…
5. … _____ the schedule …

d) Write questions using the following prompts and the phrases in ex. c.
1. dimensions: what / overall size / module?
2. materials: what / bodywork / made of?
3. schedule: when / work / start?
4. power: what / maximum output / need / be?
5. heat resistance: what / temperature / paint / need / withstand?
6. tolerance: what level / precision / you want us / work to?

e) Claudia goes on to ask about the physical effects the simulator needs to produce. Listen to the conversation and make notes on the following points. (6.2)
1. Possible variation in simulator movement _____
2. Extent of physical effects required _____
3. Best way to assess physical effects _____

f) Listen again and explain what is meant by the words and phrases in bold.

*...**to what extent** do you want the experience to be physical?*
***The degree to which** it moves can be varied ...*
*It´s obviously difficult to **quantify** something like this…*
*The only way to **determine** what´s right is to actually sit in a simulator…*
*... you can **assess** the possibilities.*

g) Following the meeting, Claudia writes an email to update Rod, an engineering colleague. Read the extract and choose a word or phrase from the exercise above that means the same as the words in bold. Sometimes more than one answer is possible.

*In order to (1) **find out about** the simulator´s dynamic capabilities, we looked at the types of effect the simulator should produce, and (2) **the amount** these physical effects should be felt by passengers. Specifically, the following issues were discussed:*

- *(3) **How severely** should the module generate vibration, to simulate engine thrust?*
- *(4) **How severely** should the module generate jolting due to supposed atmospheric turbulence?*
- *(5) **How much** will passengers be exposed to constant linear G-force, to simulate deceleration?*
- *In order to (6) **work out** the magnitude of the above parameters, it was decided that the prototype will be equipped with variable controls. This will enable the client to (7) **evaluate** different levels of severity through trials inside the simulator.*

Write an introduction and a conclusion to the email above.

(For more on writing emails, go to: http://www.wikihow.com/Write-a-Formal-Email, or http://www.english-for-techies.net/Q%20&%20A/Writing-emails.pdf and http://www2.elc.polyu.edu.hk/cill/eiw/e-mail.htm)

h) You are consulting engineers preparing to work with a space agency to design an unmanned landing module. The module, which will carry scientific equipment, is intended to detach from a space ship orbiting Mars and land on the planet. At this stage, this is all you know about the project. In pairs, prepare a list of the main questions you will need to ask at the needs analysis meeting using the following ideas.

- type of scientific equipment
- size/ weight of equipment
- solidity/ fragility of equipment
- surface conditions at landing site

(adapted from Ibbotson, M. *Cambridge English for Engineering.* CUP, 2008)