

Field Examination Question in HUMANS AND AUTOMATION
MIT DEPT OF AERONAUTICS AND ASTRONAUTICS
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Question:

When humans resume exploration of the moon, this time to stay, they may be expected to construct a permanent habitat to live in during their 6 month stay. The work of building this habitat will be complex and tiring.

Your task is to suggest means for assisting in the construction and also to find ways of monitoring the physical and psychological health and fatigue of the astronauts.

In your answer you should be prepared to discuss any two (but not all) of the following issues:

1. Choose the prime source of electrical power for a 6 month stay for a crew of 4.
2. What kind of tools or machines should be provided to help build or assemble the habitat?
3. Are there some in situ lunar materials you would like to use for the habitat?
4. How would you monitor mental workload and psychological well-being?
5. How would you measure any decrement in muscle function?
6. How would you measure any cardiovascular deconditioning?

7. How would the earth to moon communication delay influence control and communication?

8. What are the principle radiation protection challenges for a lunar habitat?