Review of Structures and Thermals Sub-System at IITB

Date: 12th April, 2008

Time: 11am to 1:30pm

Venue: Casde Conference Room, Aerospace Department Main Building, IIT Bombay

Professors Present:

1. Prof K. Sudhakar, Aerospace Engineering
2. Prof PM Mujumdar, Aerospace Engineering
3. Prof Shimpi, Aerospace Engineering
4. Prof Iyyer, Mechanical Engineering

Students Present:

1. Haripriya, Structures Sub-System Head
2. Shashank Tamaskar, Controls Sub-System Head and PD
3. Saptarshi Bandyopadhyay, System Engineer and PD

The presentation on the status of the Structures Sub-System was given by Head Haripriya. The issues that were discussed in the meeting are as follows:

1. A lot of time would be required for milling of components. It should be taken into account while planning the timeline.
2. Proper ideas for thermal balance have to be thought out. Prof. Iyyer agreed to help the team in this regard.
3. The team was asked to build a proper 3D Cad model of the satellite.
4. Connectors were said to play a crucial role during vibrations.
5. Static and vibrational loads (in g) in lateral and transverse directions should be obtained from the launch vehicle data.

6. The values of temperature range in space have to be fixed.
7. The question of whether the atomic oxygen in space at 700km is significant to oxidize the metallic structure was raised.
8. The team was told to do simulations of all the structures.
9. The team was asked to study the heating of battery.
10. It was suggested that the structures team should not deal with the design of thermopiles. This work must be given to the Payload Sub-System.
11. Deployment of antenna is an obstacle that must be resolved with the help of communication and Payload Sub-System.
12. The layout in which the thermopiles fit into the nadir surface was not satisfactorily explained.
13. The method of attaching the satellite to the launch vehicle must be studied.
14. It was advised that the structures team should be divided into two sub-groups. Ons subgroup should work with Prof. Mujumdar for structural analysis, whereas the other subgroup should work with Prof. Iyyer for thermal analysis.