Road to Space

The talk on road to space, was held on the 21st of October, in F101. The speaker was Mr. Kartik Kumar, a Phd candidate at the Delft University of Technology, the Netherlands. He is pursuing it in the Aerospace Engineering Department of TU Delft, specialising in Astrodynamics.

Astrodynamics, a highly upcoming specialisation in Aerospace Engineering, is simply the study of motion of objects in space. It is basically an application of Classical Mechanics. Astrodynamics is very important in applications such as launching rockets, and satellites into space. Mr. Kumar, them went further, and explained that it mainly consisted of Classical Mechanics and was used to find the trajectory of objects in space. He then described the various important missions, such as Curiosity, Kepler and explained the role of Astrodynamics, in deciding the precise details of their launch and delivery into orbit. He also spoke about its application in GPS satellites, measuring earth’s magnetic field and other projects. He also highlighted remote sensing, and spoke about how his colleagues worked upon processing the data they received from the Japanese Tsunami.

After an initial discussion about the subject, he then went on to describe the projects he worked upon. These were very interesting and diverse, such as designing a satellite, the Infrared Interferometry Satellite and a project about Weak Stability. He described various other ideas, such as designing a mission so as to send a probe to an asteroid and return with samples. He then went on to speak about one of his main projects, regarding the dynamics of the Mu ring of Uranus and its satellite Mab. Among the things an Astrodynamicist does is identifying risk factors and analysing missions for risks and feasibility studies.

He then went on to speak about the future of the Space industry, which he said was in commercialisation and privatisation of space. The illustrated this by highlighting SpaceX and Virgin Galactic. After this, CubeSats, miniature satellites were discussed, and he urged students to take part in such projects.

He then went on to describe the required background for a career in Astrodynamics. He said that a person needs experience in the hands on aspects of engineering. Expertise in mathematics is required, with knowledge of statics and dynamics.

The speaker concluded the talk and recommended students to consider coming to TU Delft for their higher studies. The talk was a great success and it helped students get familiar with the field of Astrodynamics.