



SPACE

awareness

WHO IS A GROUND SEGMENT SUPPORT ENGINEER?

Field Engineering, radio physics
Type Research
Level of study Bachelor, Masters



What is the field about?

The ground segment is the ensemble of all the ground-based stations that **give support and communicate with a spacecraft**, like satellites or scientific probes. These stations are generally equipped with antennae, transmitters, receivers and other instruments. They ensure the reception of signals from the spacecraft, decode this data, and deliver it to the final user. They equally send commands to the spacecraft to activate or de-activate specific functions, for example to correct its position in orbit.

What would I do every day?

Every day the good functioning of the station needs to be assured so a set of routines are implemented to confirm that the station is ready to perform its missions. Before contacting a spacecraft, several tests are often run to assure the readiness of the station. Once the spacecraft is in a position where it is possible to contact it, then ground based engineers program the station, receive data and send commands to the spacecraft.

How much and what do I need to study?

This is a transversal area of knowledge. It is important to have a good background in physics and mathematics in order to understand all the technical orbital issues. You can study engineering sciences like computers, mechanics, electronics and radio physics.

Where can I work?

In any ground station from a satellite, scientific probe or space station.

This is the job for me, if...

...you are an enthusiast for radio and communications.

...you want to grasp a wide scope of space technologies.

A Ground Segment Engineer should be:

A person with a wide knowledge in **systems engineering**.

A **responsible** person given that the ground segment is both the ears and the eyes of the spacecraft. The information received is of great importance and the commands sent to the spacecraft control it so this implies a great amount of responsibility.

Learn more about ground support engineering with:

- Wikipedia article on Ground Segment
- Video about BT's sole operational UK satellite ground station
- Animation and article on world-wide Galileo Ground Segment system.

The article is based on information kindly provided by Ricardo Conde, Coordinator at Edisoft, ESA Satellite Tracking Station.

Image: *Fucino ground station*

Credit: *ESA*



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