

DEVELOPMENT OF A TRAINING PROGRAM FOR ENHANCING THE USE OF ICT TOOLS IN THE IMPLEMENTATION OF PRECISION AGRICULTURE

2018-1-ES01-KA202-050709

Training package 2

Practical. Video about introduction of GNSS and GIS

Tutor instructions

Authors: UPC

Date: May 2020

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Contents

1	Objective.....	2
2	Access to the video.....	2
3	Questions.....	2

Note to the teacher: This document contains mainly the same information as the document 'Student guidelines', except for the answers in blue color.

1 Objective

The objective of this practice is to learn about the principles of GNSS and GIS.

2 Access to the video

You can find the video related with GNSS in the following link <https://youtu.be/qHgIy38BgTQ>, and the video related with GIS in the next link <https://youtu.be/p4NbRw3QkGk>. Also, you can find the videos in your training directory (Introduction to GNSS.mp4 and Introduction to GIS.mp4).

3 Questions

Answer the following true or false questions according to the video about GNSS.

1. The minimum satellites needed to compute your position are 4.
True, three satellites are needed to physically make the triangulation of the user. The fourth satellite is used for corrections and increase the time accuracy.
2. The maximum satellites allowed for the receivers are 10.
False, as much more satellites better the accuracy.
3. The satellites transmits directly your position.
False, the satellites transmit the «Nav Messages» in two different frequencies (L1 – 1,57542Ghz & L2 – 1,22760 Ghz) this messages includes an accurate Time Stamp and the satellite position, using this data the user position can be computed.
4. WGS84 is a mathematical model of earth.
True, the World Geodetic System is used to reference all the geographical maps to use the same models as standards. There are other standards like ETRS89, ED50, NAD83, PSAD56, SIRGAS.
5. Clock errors are corrected by the satellite itself.
False, there are ground stations monitoring and updating the satellites clock errors.

6. EGNOS is a type of SBAS.

True, The European Geostationary Navigation Overlay Service is the SBAS offered in the Europe.

7. In SBAS the correction are computed onboard.

False, the corrections are computed on ground stations, then transmitted to the satellites and finally send it to the users.

8. The satellites precision, DOP, depends on the satellite position.

True, the relative position between the satellites could increase the DOP, as higher the angle between the satellites is better the DOP.

Answer the following question about the GIS video.

1. What type of data models can be used in a GIS? Explain in detail each one.