

Course Syllabi

1. TICS-00041 GEOINFORMATICS

2. 192 credits hours.

3. Bibliography

- Geospatial Intelligence in Joint Operations, Joint Force Development, 2017
- <https://onlinelibrary.wiley.com/doi/abs/10.1111/tgis.12720>, Granell, C., PesántezCabrera, P. G., VilchesBlázquez, L. M., Achig, R., Luaces, M. R., CortiñasÁlvarez, A., ... & Morocho, V. , 2021
- Introducción a la Cartografía, en línea., López, A. y J. Aldabe., 2014
- How Netflix Uses Big Data to Build Mountains of Money, Bikker, Y., 2020
- <https://ieeexplore.ieee.org/abstract/document/9709852/>, López-Vázquez, C., Gonzalez-Campos, M. E., Bernabé-Poveda, M. A., Moctezuma, D., Hochsztain, E., Barrera, M. A., ... & Seco, D. , 2022
- Spatial thinking. , Campbell, Shin, 2012
- Sistemas de Información Geográfica, Olaya, V., 2014
- Escenario de riesgo de introducción de la influenza tipo A en México estimado mediante geointeligencia, Ibarra-Zapata, E., Gaytán-Hernández, D., Mora Aguilera, G. y González Castañeda, M. E., 2019

4. Specific Course Information

- a. Geoinformatics is a subject that complements training in the computer career, which will allow the student to gain skills in the application of information technology in the management, analysis and visualization of geospatial data. The course covers several important topics, including geospatial databases, which allow the design, creation and management of databases containing geographic information. Students will also study inf systems geographic ormation (GIS), which are tools and techniques for the visualization, analysis and processing of geospatial data, and which have a wide range of applications in decision-making.
- b. Prerequisites:
 - TICS-00037 SOFTWARE QUALITY
 - TICS-00070 CURRICULAR CAPSTONE COURSE 1
 - TICS-00040 ENTREPRENEURSHIP AND INNOVATION
 - TICS-00055 PRE-PROFFESIONAL PRACTICES
 - CSCO-00166 PROFESSIONAL RESPONSIBILITY AND REGULATIONS IN COMPUTER SCIENCE ENGINEERING
 - TICS-00043 COMPUTER GRAPHICS

5. Learning Objectives of the Course

- a. To teach the application of information technology in the management, analysis and visualization of geospatial data, using geospatial databases and programming.
 - To know the fundamental concepts of information technology applied to the management, analysis and visualization of geospatial data.
 - To understand the different types of geospatial data and how they are stored, processed and used in geographic information systems (GIS).
 - To learn how to design and create databases Geospatial cough and use geospatial data management tools.
 - Develop GIS programming skills to create applications that work with geospatial data using different

programming languages.

b. Learning Outcomes

- •learn how to design and create geospatial databases and use geospatial data management tools.
- • gains knowledge about geoprocessing and geospatial data analysis
- •understands the different types of geospatial data and how they are modeled, stored, processed and used in geographic information systems (gis).
- •develop sig programming skills to create applications that work with geospatial data using different programming languages.
- •understands the standards and policies necessary for the interoperability of geospatial data and spatial data infrastructure (sdi).
- •knows the fundamental concepts of information technology applied to the management, analysis and visualization of geospatial data.

6. Course Topics

- Basic concepts of mapping
- Representation of geographical space
- Acquisition of geospace data
- Quality of space information
- Funds for the geoprocessing of information
- Space databases and programming
- Space data infrastructure