Basic GIS

- Introduction to GIS
- Hardware and software requirements of GIS
- Database structures and formats
- Vector data structures
- Raster data structures
- Data importing, editing, and topology in GIS

Advanced GIS

- Integration of spatial and non-spatial data
- Map Projections and data transformation in GIS
- Spatial data analysis (vector-based)
- Spatial data analysis (raster-based)

Advanced Skills in GIS

- Digital elevation model (DEM) and its applications
- Remote sensing and GIS data integration
- Entry and accuracy evaluation in GIS (data quality and source of errors)
- Network analysis in GIS
- Characteristics of large area database: global and regional
- Decision support system
- Overview of current GIS packages
- Trends of geo-information

Fundamental concepts of the Global Positioning System (GPS)

- Types of GPS, GPS satellites, constellation of GPS satellites
- Applications of GPS in resource surveys, mapping and navigation

Photogrammetry

- Fundamentals of aerial photogrammetry
- Aerial cameras
- Film Processing (black-and-white, colour, black and white infrared, colour infrared film density and characteristic curves)
- Air photo triangulation
- Principles of stereo photogrammetry
- Principles of digital photogrammetry
- Principles of cartography and map making
- Project

Introduction to GIS

- Spherical Earth
- Ellipsoidal Earth-ellipsoid geometry
- Coordinate transformations
- Geodetic coordinate system
- Time systems
- Introduction to satellite positioning system: the basis, ephemeris, positions of satellites, distances, satellites to the point

Fundamentals of Surveying

- Definition of surveying science
- Measuring
- Observation
- Obstacles
- Area calculation
- Maps
- Topographic maps
- Plans
- cadastre surveying
- Levelling

Fundamentals of Geodesy

- Introduction to Geodesy
- Fundamental concepts of satellite geodesy
- Fundamentals of reference coordinate systems
- Satellite motion
- Satellite to the point
- Celestial coordinate systems
- Ellipsoidal geometry

Space Geodesy and Satellite Positioning

- Introduction to Geodesy and basic concepts of satellite geodesy
- Fundamentals of reference coordinate systems
- Fundamentals of satellite positioning systems
- GPS errors and biases
- GPS details
- GPS systems with satellite positioning

Global Positioning System (GPS)

- GPS receiver and basics
- Datums, coordinate systems, and map projection
- GPS positioning modes
- GPS data and correction services
- GPS standard formats
- Other satellite navigation systems
- GPS applications (GPS project training)

Space Geodesy

- GPS System with satellite position
- GPS satellites constellation of GPS
- GPS applications
- Data inputting

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### Regional Member States

- **Jordan** (the hosting country)
- Egypt
- Iraq
- Kuwait
- Lebanon
- Libya
- Sudan
- Syria
- Yemen

### National Counting Institutions

- **The Royal Jordanian Geographic Center (RJGC)**
  - al Salt (RJGC) University
  - Jordan Meteorology Department (JMD)
  - Amman University
  - The World Islamic Science and Education University (WISE)

### Postgraduate Curriculum

In cooperation with SYONOVA, the following courses will be taught at the Postgraduate Diploma level.

#### Advanced Remote Sensing

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### Newsmaker

In 1998, the UN requested the Western Asia countries to indicate whether they were interested in hosting the Regional Center for Space Science and Technology Education in Western Asia. The RJGC had organized an evaluation mission to the Western Asia countries that offered to host the center.

In 1999, the 25th General Assembly of the Foundation of the Scientific and Technical Committee on Space Activities held in Vienna from 3–10 November 2000, as Section E, “Regional and International Cooperation,” Paragraph 65 stated that: "The Subcommittee noted with satisfaction following the review of a report on an evaluation mission and of offers and comments made by interested countries, Jordan had been identified as the country that would host the Regional Center for Space Science and Technology Education in Western Asia. The RJGC had announced the establishment and location of the Centre.”

In 2000, the Director General of the RJGC during his attendance of the 14th Session of the United Nations Committee on the Peaceful Uses of Outer Space (UNOOSA) has announced officially the acceptance of the Government of Jordan to host the Regional Center for Space Science and Technology Education for Western Asia.

There are five regional centers established in the world.

- India: for Asia, Pacific region.
- Indonesia: for Africa region.
- Brazil and Mexico: for Latin America and the Caribbean.

### Vision

To realize the capability of space science and technology for the benefit of humanity, for national socio-economic development through education, advanced research and training.

### Objectives of the UN Regional Center

- Develop the skills and knowledge of university educators, environmental resource scientists and project personnel in the design, development and application of remote sensing and related technologies and subsequent applications in national and regional development and environment management programs including fire detection and protection.
- Ensure irrigators to develop environmental and atmospheric sciences curricula that they can use to advance the knowledge of their students in their respective institutions.
- Develop skills for satellite communications including those associated with rural development, climate mitigation, and network benefits of the region’s professionals and scientists.
- Government establishment and interventions in order to facilitate the exchange of new ideas, data, and expectations.
- Enhance regional and international cooperation in space sciences, technology and applications programs.
- Assist in disseminating to the general public the value of space sciences and technology in improving their everyday quality of life.

### Regional Member States

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