Royal Jordanian Geographic Centre

Regional Centre For Space Science
And Technology Education For Western Asia
(Affiliated To The United Nations)

Amman – Jordan
Outlines

- Background
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Background

- The United Nations General Assembly, in its resolution 45/72 in 1990 endorsed the recommendation of the Committee on the Peaceful Uses of Outer space that "...the United Nations should lead, with the active support of its specialized agencies and other international organizations, an international effort to establish regional centers for space science and technology education in existing national/regional educational institutions in the developing countries."
The United Nations General Assembly further endorsed the regional centers initiative and in its resolution 50/27 in 1995, and recommended that "... these centers will be established on the basis of affiliation to the United Nations and that such affiliation would provide the centers with the necessary recognition and would strengthen the possibilities of attracting donors and of establishing academic relationships with national and international space-related institutions."
Background

- The UN General Assembly’s Report of the Scientific and Technical Subcommittee on its 37 Session in 2000, that:

  ‘The Subcommittee noted with satisfaction that, following the review of a report on an evaluation mission and of offers and commitments made by interested countries, Jordan had been identified as the country that would host the Regional Centre for Space Science and Technology Education in Western Asia. The UNOOSA had announced the establishment and location of the Centre.’
In 2011, the Director General of the RJGC announced officially the acceptance of the Government of Jordan to host the Regional Center for Space Science and Technology Education for Western Asia.
Background

• The Regional Center for Space Science and Technology Education for western Asia (RCSTEAWSA) was inaugurated in 29 May 2012, under the patronage of his majesty King Abdullah-II, The king of the Hashemite Kingdom of Jordan.

• The ceremony includes a governing board meeting, a Regional centers directors meeting (one day before), and signing the affiliation agreement with the UN office for outer space affairs.
Vision

To utilize the capabilities of space science and technology for the benefit of humanity, for national socio-technological development through education, advanced research and training.
Objectives

- Strengthen the capacity of member states in the field of space sciences and technology, researches and applications programs.

- Grant a Master degree in Remote Sensing, GIS, Satellite Communications, Space and Atmospheric Sciences and Satellite Meteorology and Climatic Change.

- Conducting short, med and long-term courses (3-9 months).

- Offering a scientific environment for Western Asia region and other member states’ students and researchers.
Objectives

- Develop the skills and knowledge of university educators, environmental researchers, scientists and project personnel in the related subjects.

- Assist educators to develop environment and atmospheric sciences curricula that they can use to advance the knowledge of their students in their respective institutions/countries.

- Enhance regional and international cooperation in space science, technology and applications programmes.

- Assist in disseminating to the general public the value of space sciences and technology in improving their everyday quality of life.
Regional Member States

- The Hashemite Kingdom of Jordan (the hosting country)
- Arab Republic of Egypt
- Republic of Iraq
- State of Kuwait
- Sultanate of Oman
- Republic of Lebanon
- Libya
- Republic of the Sudan
- Syrian Arab Republic
- Republic of Yemen
Main National Contributing Institutions

• The Royal Jordanian Geographic Centre (RJGC)
• Al al-Bayt University (AABU)
• Jordan Meteorological Department (JMD)
• Higher Council for Science and Technology
• The World Islamic Sciences and Education University (WISE)
• Mu’ta University (MU)
The Institute of Astronomy & Space Science (IASS) at Al al-Bayt University (AABU)

Historical background:
IASS-AABU was established in September 1994.

Its Goals:
- Building national capacities in Astronomy & Space Science.
- Doing research in Astronomy & Space Science.
- Organizing conferences, seminars & specialized lectures in Astronomy & Space Science.
Some Jordanian universities offer astronomy/astrophysics courses as electives (e.g. University of Jordan, Yarmouk University, Hashemite University, AABU, Islamic Science University …)

Al al-Bayt University is the only one that offers a degree-leading program in Astronomy & Space Science.

IASS-AABU offers the M.Sc. Degree in two disciplines:
- Astronomy/ Astrophysics
- Space Science
Maragha Observatory at AABU
Maragha Observatory at AABU

16-inch Meade LX200
CCD
Pictor 1616

Schmidt-Cassegrain Reflector

The Jordan Astronomical Society
Has three Observatory
Telescopes of 14”, 10” and 8”
Jordan Meteorological Department (JMD)  
Meteorological Training Center (MTC)

- In 1951, the JMD was established as part of the Civil Aviation Authority. The department operates 36 stations: 17 Synoptic, 9 Climatological stations, 9 Agro-meteorological Stations and 1 Radiosond Station.

- MTC was established as an agency of the JMD in 1972.

- The center provides training courses and graduates weather forecasters, observers and technicians.

- All teachers and trainers in the MTC are staff of JMD and graduates of MTC. They are sufficiently qualified academics, well experienced and already participated in many training courses.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Training hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Science</td>
<td>32</td>
</tr>
<tr>
<td>General Meteorology</td>
<td>48</td>
</tr>
<tr>
<td>Meteorological Instruments</td>
<td>32</td>
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<tr>
<td>Aeronautical Meteorology</td>
<td>32</td>
</tr>
<tr>
<td>Observation Methods</td>
<td>48</td>
</tr>
<tr>
<td>Weather Charts Plotting</td>
<td>64</td>
</tr>
<tr>
<td>SYNOP Code</td>
<td>32</td>
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<tr>
<td>Upper Code</td>
<td>16</td>
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<tr>
<td>Metar Code</td>
<td>32</td>
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<tr>
<td>Agricultural Meteorology</td>
<td>16</td>
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<tr>
<td>Climate Science</td>
<td>16</td>
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Postgraduate Curriculum

In cooperation with UNOOSA, the following courses will be taught at the Postgraduate Diploma level:

• Remote Sensing & GIS
• Satellite Communication
• Satellite Meteorology & Global Climate
• Space and Atmospheric Sciences
Human Recourses:

- RJGC, Al al-Bayt University and Meteorological Department have experts in the fields of Remote Sensing, GIS, Photogrammetry, Surveying, Space Science and Astronomy.

- RJGC provides professional technical staff to supervise RS & GIS laboratories in the Centre.
HR & Facilities

Facilities:

- Classrooms equipped with appropriate training aids.
- Remote sensing and GIS laboratories.
- Auditorium.
- Library.
- Cafeteria.
Training Center Facilities

Labs:
- Remote Sensing Labs
- GIS Labs
- Classrooms
- Auditorium
- Library

Equipment:
- Office furnishings
- Workstations for image processing
- Workstations for GIS
- Data Show Devices
- Intranet and internet facilities

Software:
- ERDAS
- ArcGIS
- PCI
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>RS 1</td>
<td>Definition and overview of remote sensing and remote sensing system.</td>
</tr>
<tr>
<td>RS 2</td>
<td>History and evolution of remote sensing.</td>
</tr>
<tr>
<td>RS 3</td>
<td>Electromagnetic radiation, terms and definitions, laws of radiation.</td>
</tr>
<tr>
<td>RS 4</td>
<td>Interaction between electromagnetic radiation and matter, reflection absorption and transmission.</td>
</tr>
<tr>
<td>RS 5</td>
<td>Interactions between electromagnetic radiation and atmosphere.</td>
</tr>
<tr>
<td>RS 6</td>
<td>Remote sensing systems: active and passive systems, imaging and non-imaging systems, resolution—spatial, spectral and temporal.</td>
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<tr>
<td>RS 7</td>
<td>Orbits and platforms for Earth observation.</td>
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<tr>
<td>RS 8</td>
<td>Earth observation satellites (Landsat, SPOT, IRS).</td>
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<tr>
<td>RS 9</td>
<td>Sensors used in Earth observation satellites and their geometric characteristics.</td>
</tr>
<tr>
<td>RS 10</td>
<td>Data reception, processing and generation of data products.</td>
</tr>
<tr>
<td>RS 11</td>
<td>Geometric and radiometric corrections and sources of errors in satellite data.</td>
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<tr>
<td>RS 12</td>
<td>Ground truth data collection—use of radiometers and spectrophotometers etc.</td>
</tr>
<tr>
<td>RS 13</td>
<td>Spectral reflectance and spectral signature for water, land and vegetation.</td>
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3 Months Courses
- Introduction to GIS
- Hardware and software requirements of GIS
- Database structures and formats
- Vector data structures
- Raster data structures
- Data inputting, editing and topology

6 Months Courses
- Integration of spatial and non-spatial data
- Map Projections and data transformation
- Spatial data analysis (vector-based)
- Spatial data analysis (raster-based)
Activities

Since the establishment, the RCSTEW A conducting the following programs:

Training courses
1. 19- courses in GIS.
2. 15- courses in surveying.
3. 04- courses in Remote sensing.
4. 03 –courses in cartography.

Academic programs
1. Msc. program in GIS has been started in 2013.
Inaugurated Ceremony
Inaugurated Ceremony
Inaugurated Ceremony

The Royal Jordanian Geographic Centre

Welcomes

Representative of His Majesty King Abdullah II ibn Al Hussein

HE General Mashal Al-Zuban Chairman Joint Chiefs of Staff

and the Distinguished Guests to the Opening Ceremony of

The Royal Jordanian Geographic Centre

Science and Technology Education for Peace (UNESCO)
Inaugurated Ceremony
Inaugurated Ceremony
Thank You