



**POLITECNICO
DI MILANO**

Memorandum of Understanding

Between

Benha University

And

Politecnico di Milano

Surveying Engineering Department, Faculty of Engineering Shoubra, Benha University, Egypt and Environmental, Hydraulic, Infrastructures, and Surveying Engineering Department, Politecnico di Milano, Milano, Italy, believing the extension and strengthening of scientific and technological exchange and co-operation to be of mutual value to their institutions and to the development of understanding between our peoples, hereby record their intentions to promote academic, educational and cultural exchange between their institutions through the following activities.

Benha University and Politecnico di Milano would like to sign a Memorandum of Understanding promoting academic, scientific and technological cooperation and forging a partnership building on the mutual research strengths of Benha University and Politecnico di Milano.

1. IDENTIFICATION OF COLLABORATIVE RESEARCH

1.1 Collaborative Research

As outlined below, the two Institutions have common research interests as well as complementary areas of research strength. The two Institutions will explore opportunities for collaborative research and may nominate academic staff, subject to the written approval of the host institution, to participate in such research through the exploration of opportunities arising in either country. Through this collaboration academic staff members from either institution may be invited to the partner institution for the purpose of research or lecturing in the other institution on a reciprocal basis. The participant is subject to the written approval of the host institution. The period of stay in the partner institution will normally be a few months to one year. The host institution (Benha University and Politecnico di Milano) will provide an institution appointment, library and research facilities, and other assistance as far as possible. The host institution will assist the visiting academic staff in locating living accommodation.

1.2 Visiting Academic Staff

In addition to the collaborative visits to the partner, each institution may invite faculty members of the other institution for the purpose of lecturing or consultation for a

specified period of time, subject to the written approval of the home institution. In such cases the inviting institution makes appropriate funding arrangements agreed to in advance in writing.

1.3 Visiting Research Fellows

Each institution may nominate one or more of its faculty to visit the other institution for the purpose of advanced study or research, subject to the approval of the host institution. The host institution will provide institutional courtesies, library and research facilities which will be agreed to in advance in writing.

1.4 Library exchange

Each library may also exchange reference materials for research purposes.

2. AREAS OF MUTUAL RESEARCH STRENGTH

The following list of identified research strengths at Benha University serves as an initial indicator of areas where there may be mutual interest.

2.1 Geodesy

- mathematical and physical geodesy
- GPS surveying methods
- Geodetic monitoring of seismic faults
- International Geoid Service (IGeS)
- Geoid estimation

2.2 GIS (Geographic Information Systems) and Cartography

- Advanced structured cartographic 3d data management
- Cartographic correlation-georeferencing tools
- Practical and theoretical aspects of GIS
- Problems related to standardization (CEN and/or ISO and/or national)
- Data interoperability and data quality
- GIS (desktop applications for high level data analyses)
- WebGIS (internet applications to publish GIS data on the web for querying)
- Mobile GIS (PDA or mobile phone-based applications)
- Construction of 3D-GIS models

2.3 Remote Sensing

- Multispectral remote sensing
- Hyperspectral remote sensing
- environmental analysis and mapping
- analysis of multitemporal data
- data fusion
- natural hazards and disaster assessment

- urban mapping
- image registration and rectification
- algorithm development
- image classification
- multitemporal analysis and change detection
- accuracy assessment
- sensor calibration
- sensor validation and verification
- feature extraction

2.4 Surveying, Monitoring, Photogrammetry, Modeling

- Multi-sensor data acquisition technologies
- Multi-scale Space Modeling
- Object Recognizing
- DSM extraction
- Statistic analysis
- Risk prevention
- Contextualized planning
- protection of the cultural heritage and of the environment

3. TERMS OF COOPERATION

3.1 The terms of co-operation for each specific activity implemented pursuant to this Memorandum of Understanding shall be subject to and contained in a mutually agreed written document executed by both parties prior to the initiation of that activity.

3.2 This Memorandum of Understanding expresses the intention of the parties, but is not intended to create a legal relationship between the parties.

4. CO-ORDINATION OF THE COLLABORATION

4.1 Each institution shall designate a Liaison Officer to develop and co-ordinate the specific activities agreed upon. The initial appointments are as follows: Dr, Director, and Dr, Deputy Director.

4.2 Through these offices, either party may initiate proposals for activities and, if agreed by the other party, specific details of any such activities will be set forth in a mutually agreed letter of agreement executed by both parties.

4.3 The conduct of any activities contemplated by this Memorandum of Understanding shall be subject to the mutual agreement of the parties and embodied in a document executed by the parties.

5. RENEWAL, AMENDMENT AND TERMINATION

5.1 Renewal

This Memorandum of Understanding becomes effective on the date of signature. It is renewed automatically without change each year until termination.

5.2 Amendment

This Memorandum of Understanding may be amended at any time in writing by the written agreement of both of the parties. A party wishing to make an amendment shall provide the other party written notice of the nature of the amendment.

5.3 Termination

This Memorandum of Understanding for co-operation may be terminated by either of the parties at any time provided notice is given six months in advance.

5.4 This Memorandum of Understanding shall be prepared in duplicates, each party keeping one original.

Signed on _____ in _____ by

Dr.

Dr.

For and on behalf of
The Benha University

For and on behalf of
Politecnico di Milano

Witnessed by

Professor

Professor