ISSUES AND CHALLENGES OF THE SURVEYING ENGINEERING EDUCATION IN MOROCCO
PRESENT AND FUTURE

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1- Introduction

The Institute of Agronomy and Veterinary medicine Hassan II

- Education
- Research
- Development

Six branches of Education
Surveying engineering,
Engineers in agronomy,
Rural engineering,
Engineers in farming equipment,
Veterinary medicine,
Horticultural engineering

The Surveying Engineering Branch

In early 1970's:
- dedicated to graduate surveying engineers based on first-year program (ingénieurs d'application)
- the needs of the agriculture Ministry (Administration of Land registration, Cadastre and Cartography)

In 1988:
- new needs of the professional users & rapid technological developments,
- extend the educational program to the teaching of the advanced technologies in the domain of Geodetic Science and Geo-information (six-year)

1970 to 1988
437 engineers (4-year)
14 from Africa (Tu, Ni, Mau, Cam)

1988 to 2004
437 engineers (6-year)
13 from Africa (Ben, Fa, Tog)
15 Licences
45 (Math Sp & D)

2004
New system

2. HISTORICAL OVERVIEW

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2. HISTORICAL OVERVIEW

- Urban Agencies
- Agriculture
- Construction
- Private surveying societies
- Highways
- Habitats

3. THE PRESENT EDUCATIONAL PROGRAM

1. Fundamental Sciences
   - Mathematics, physics, computer science, statistics, probability

2. Basic Education
   - Professional education:
     - Geodesy, surveying, photogrammetry, cartography, land regulation, cadastre
     - Professional connected education:
       - Road network, consolidation, purification, urban and rural planning, allotment, hydraulics
   - General education:
     - Civil law, economy, communication, marketing, management, languages, sports

3. Present Educational Program
   - Curriculum programs are conceived to meet the requirements of professional needs.
   - Advanced Techniques:
     - Global Positioning System (GPS), numerical surveying, analytical and digital photogrammetry, numerical cartography, remote sensing and satellite imagery, Geographic Information Systems

4. Practical Projects and Field Trainings:
   - Laboratories, field trainings, cadastre and training in professional and private societies.

5. Research:
   - Seminars, thesis preparation and oral examination

Field Trainings

First year:
- Practical initiation field training in France (common) for 10 weeks.

Second year:
- Training in rural (Ruralism) for 4 weeks.

Third year:
- Project of surveying for 2 weeks.

Fourth year:
- Training: a synthesis field project in geodesy, surveying, photogrammetry and cartography for 4 weeks.

Fifth year:
- Training in cadastre for 2 weeks.

Last year:
- Private or public semi-public practice, daily management and practical problems for 2 months.
4. HUMAN AND MATERIAL RESOURCES

27 My Staff
(27%)

15 Permanent Staff
(51%)

12 Assoc.
and Prof
(15%)

Educational Program

Human resources

2 departments
3 labo
1 continuing education center

4 PC laboratories
- conventional technical instruments
- electronic total stations and levels
- GPS receivers,
- analytical and digital photogrammetric instruments,
- stations of satellite imagery processing.
- softwares: photogrammetry, remote sensing, digital cartography, GIS, geodesy and surveying.,
5. CHALLENGES OF THE FUTURE EDUCATIONAL PROGRAM

New programs are established taking into account the following factors:

- The professional requirements
- The advances in the new technology
- The necessities of the employment opportunities
- The available hardware resources in the institution
- The available human resources to dispense these contents
- The existing curriculums

The new curriculum provides a polyvalent education considering the practical and theoretical components such as:

- Professional courses (Geodesy, Cartography, Remote sensing, Surveying, Photogrammetry, GIS, spatial analysis, geospatial databases, Adjustment computation, Astronomy)
- Professional connected courses (land consolidation, hydraulics, land management, hydraulicoses, urban and rural management, road networks, purification network, allotment projects...)
- General courses (law, marketing, management, economy, finance, communication, ecology, environment, etc.)
- Practical works (laboratories, practical project works, field training works, seminars, thesis...)

5. CHALLENGES OF THE FUTURE EDUCATIONAL PROGRAM

General architecture of the new curriculum:

- IAV Hassan II will be transformed into a Polytechnic Institute - 8 schools of engineering
- agronomy
- agro-food
- veterinary medicine
- Horticulture...

It is proposed that the new name of the branch of surveying will be the School of engineering surveying and Geo-information.

5 years

- Two first are preparatory studies in basic courses

Two cycles of study are scheduled: two first are preparatory studies in basic courses (2 years) and then two years in the technical cycle (surveying will be the professional course).
New curriculum
- System of semesters (two semesters per year).
- Each semester is 14 to 16 weeks
- Average total credit hours of a semester is around 400 hours.
- The last two weeks of a semester are reserved to evaluation and exams.
- Courses are grouped into modules
- Maximum total credit hours of a module is 120 hours

Teachings and projects
The new vision of the education in surveying engineering aims to give a particular attention to the professional education.

Studying visits
- Professional seminars
- Field training
- Synthesis practical projects
- Dams
- Road construction
- Map production
- Professional seminars
- Training in cadastre
- Training in a private society, public or semi-public administration
- Studying visits
- Professional seminars
- Project of geomatic
- Surveying Total ST
- Cartography
- Photogrammetry
- Libya
- Oman

Continuing education programs:
- Several private societies
- Public administrations
- Programs
- GPS
- GIS
- Remote sensing
- Surveying Total ST
- Cartography
- Photogrammetry
- Special programs
- Libya
- Oman

Issues and challenges of the educational surveying system in Morocco
- The improvements achieved since 1970.
- Efforts made to elevate and develop professional competences.
- The strategies followed take into account
  - the needs of the professionals,
  - the employment market
  - The reform of the Moroccan university
Thank You for your attention