



Institut Agronomique et Vétérinaire Hassan II

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Bienvenue WELCOME أهلا وسهلا



SCHOOL OF GEOMATIC SCIENCES & SURVEYING ENGINEERING

**PROFESSIONAL ASPECTS AND SPECIFICITIES OF THE
GEOMATIC SCIENCES AND SURVEYING
ENGINEERING EDUCATION
IN MOROCCO
A UNIQUE EXPERIENCE**

Director : Prof. El Hassane SEMLALI

Marrakech FIG WW2011



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■ **OUTLINE**

- ❑ INTRODUCTION
- ❑ HISTORICAL OVERVIEW
- ❑ DISTRIBUTION OF PEDAGOGICAL ACTIVITIES
- ❑ HUMAN AND MATERIAL RESSOURCES
- ❑ PEDAGOGICAL ACTIVITIES OF THE ENGINEERING CYCLE
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- ❑ CHARACTERISTICS OF THE PRACTICAL EDUCATION PROGRAM
- ❑ RESEARCH & CONTINUING EDUCATION
- ❑ CONCLUSION



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INTRODUCTION

Engineer
Master
Doctorate

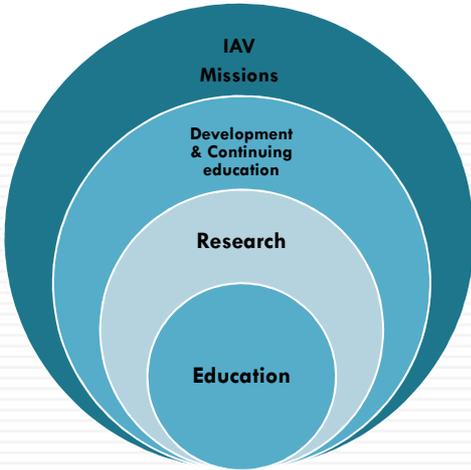


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INTRODUCTION

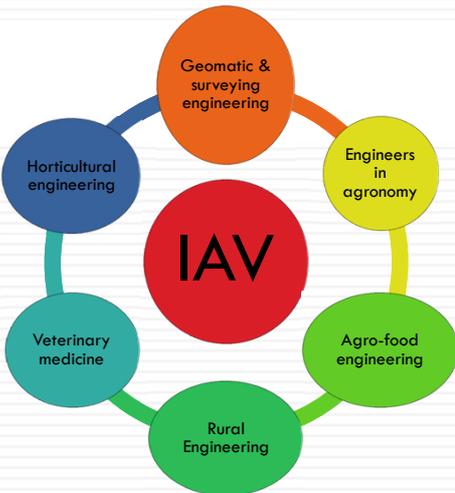
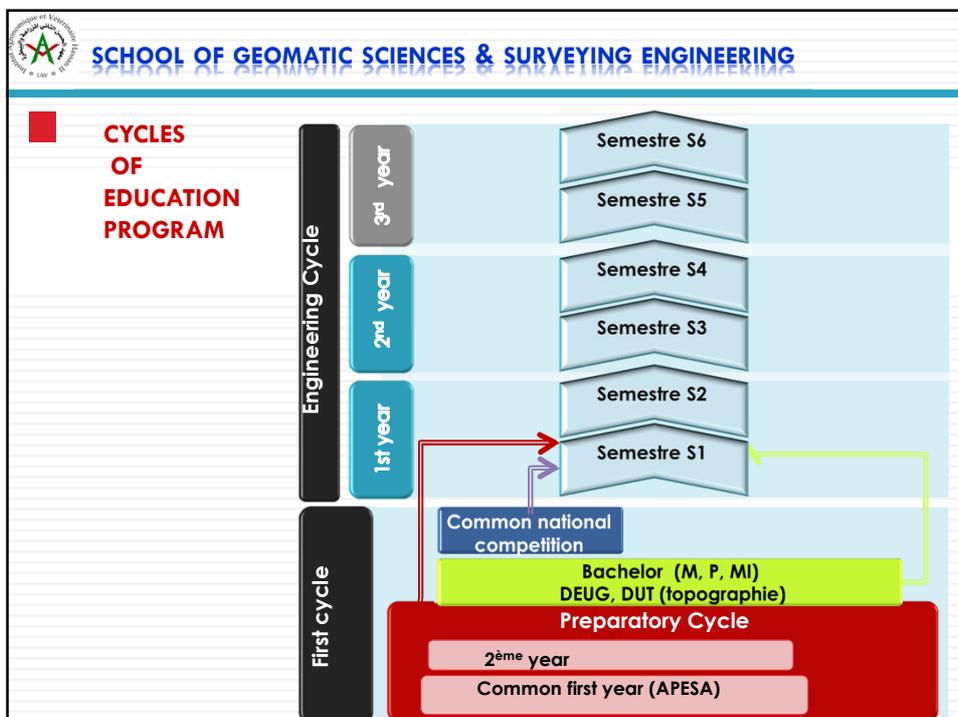
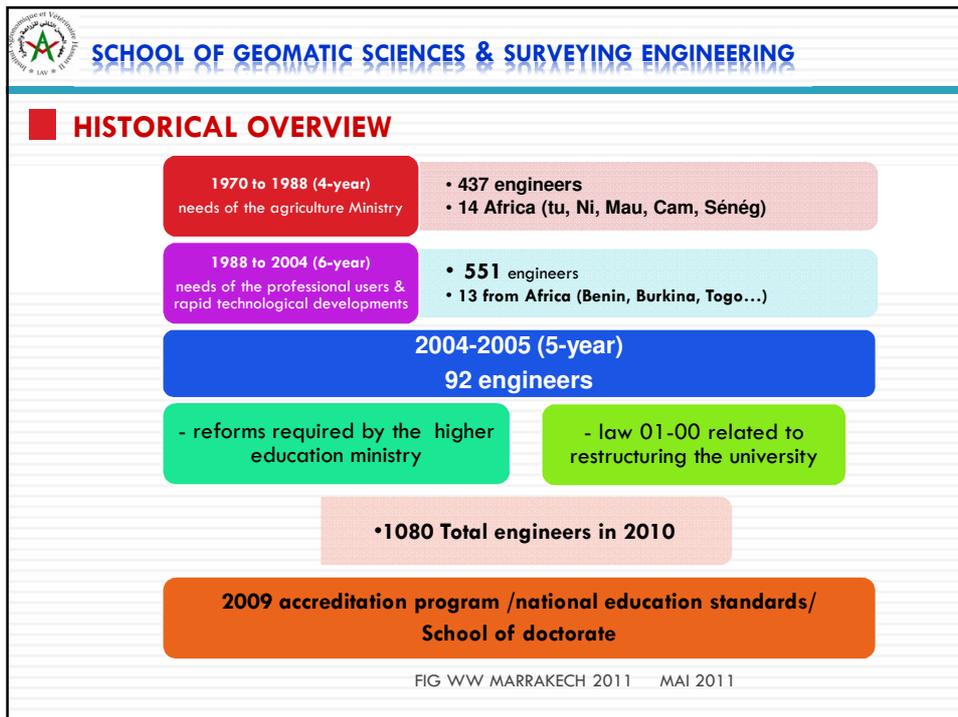
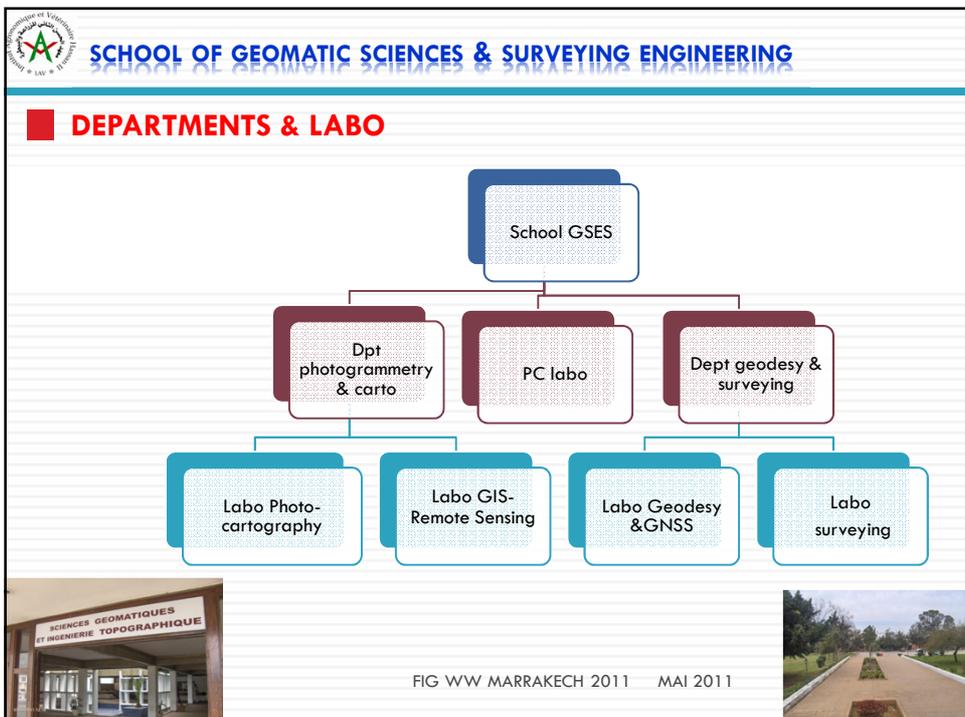
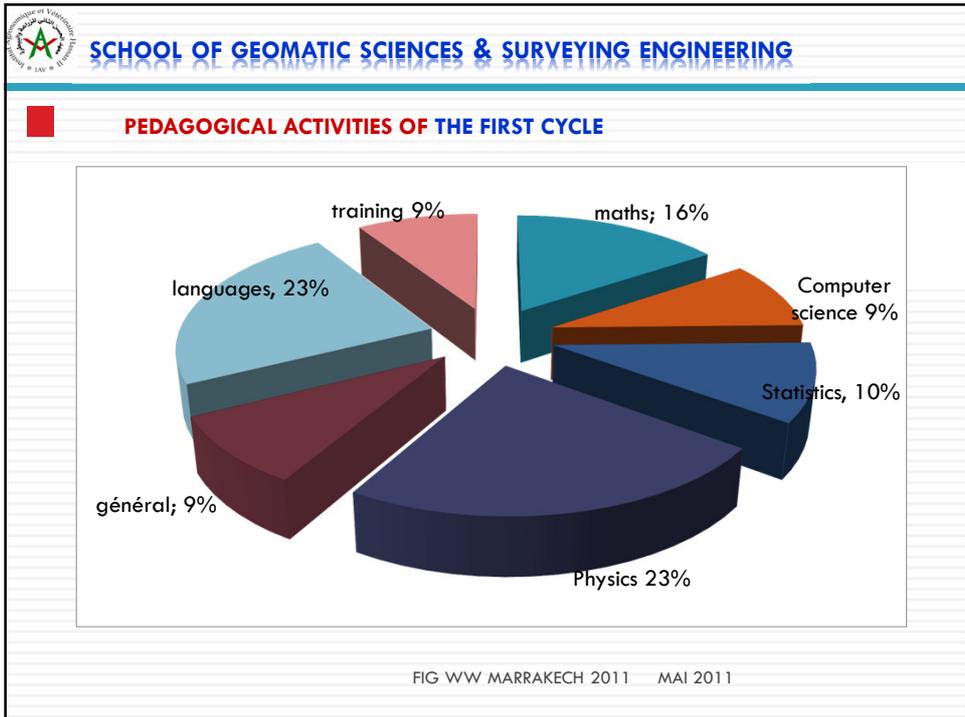


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HUMAN RESSOURCES

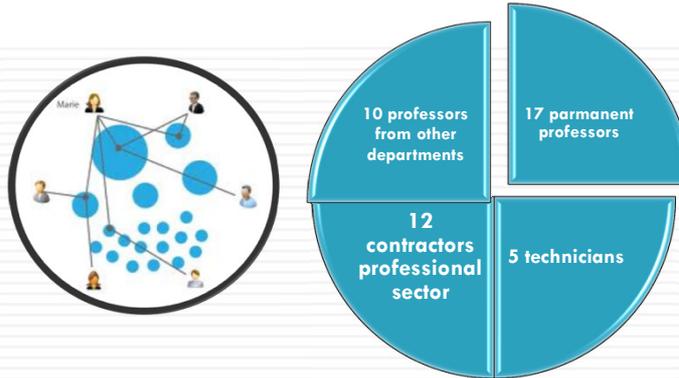


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HUMAN RESSOURCES



Permanent Professors & AP: 12 PhD, 5 MSc

DOCTORAT	UNIVERSITE
Photogrammétrie	Université Laval Canada
Télédétection et SIG	Université de Sherbrooke, Canada
Doctorat Informatique	INSA LYON - FRANCE
Doctorat d'Etat	IAV Hassan II Et 'Université de Minnesota
Doctorat es-sciences Département de Géomatique	Université de Liège
doctorat Sciences Géodésiques- Géodynamiques	IAV Hassan II
PhD en Télédétection	l'université de Sherbrooke, Canada

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SCIENTIFIC EQUIPMENT RESSOURCES

Traditional and modern instruments
Total stations, levels, GPS, permanent station
PCs, scanners, plotters, Photogrammetric stations,
Computer science equipment
Microstation MGE, AutoCad, AGIS
Analytic Instrument
SD2000, LPS
ERDAS
TGO, LGO, GNSS
Covadis

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PEDAGOGICAL ACTIVITIES OF THE ENGINEERING CYCLE

Three category of education skills :

	Scientific and technical education (1920 hours) : 74%	
	Management education (360 hours) : 14 %	
	Languages and communication skills (300 hours) : 12 %	
	Total volume of hours : 2580	

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■ SPECIFICITIES OF THE CURRICULUM

- ❑ Covers Geomatic sciences and surveying engineering
- ❑ Polyvalent engineers for any department (agriculture, habitats, roads, urban and rural management, ..).
- ❑ Covers new Space technologies, data management & communication
- ❑ Regularly updated (4years)
- ❑ Theoretical and practical lessons as well.
- ❑ The practical part covers around 30% of total VH

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■ FIRST CATEGORY: TECHNICAL AND SCIENTIFIC EDUCATION COURSES



Photogrammetry and remote sensing courses

- *Fundamental Photogramm  trie,
- *remote sensing thematic applications,
- *Physics of remote sensing,
- *photo-interpr  tation,
- *Stereophotogrammetry ,
- *Aero-triangulation,
- *digital photogrammetry.

Cartography and GIS courses

- Cartographic Projections,
- computer assisted drawing
- Cartography, Thematic Cartography
- Infography, printing technology
- digital terrain model, GIS
- spatial Analysis, database

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FIRST CATEGORY: TECHNICAL AND SCIENTIFIC EDUCATION COURSES



- Cadastre & surveying courses**
 - Fundamental surveying
 - Surveying Procedures
 - Management of cadastral Technics
 - Digital surveying
 - Road and art structure surveying
- Geodesy courses**
 - Geometric Geodesy, Astronomy and Cosmography, adjustment Computation, spatial gedy, GPS
 - Prcise levelling, physical geodesy Metrology & control stability
 - geophysics.
- Related Professional education**
 - Consolidation, hydraulics, geomorphology,
 - urban and rural management,
 - roads techniques, sanitation,
 - cical engineering techniques,
 - Land and Real estate Expertise,
 - Agricultural Water Management,

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SECOND CATEGORY : MANAGEMENT COURSES

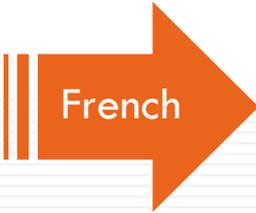


- Economy & Law courses**
 - Micro Economics,
 - General Economics
 - Professional Law
 - Planning law
 - Civil Law
 - Land law
- Management education**
 - cadastral management techniques,
 - administrative organisation,
 - Accounting, Market State Budget and Public Finance
 - Project Management,
 - Business management & marketing
 - planning cadastral information management,
 - System of Quality Management

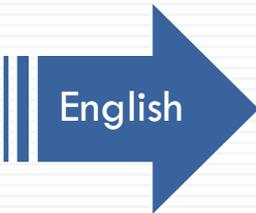
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THIRD CATEGORY : LANGUAGES AND COMMUNICATION SKILLS



- communication skills in french
- synthesis technics in french,
- writing texts in french



- communication skills in english
- synthesis technics in english
- writing texts in english.



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CHARACTERISTICS OF THE PRACTICAL EDUCATION PROGRAM

laboratories

Field TRAININGS

Seminars

Studying visits

Projects

End of studies project

Practical Program

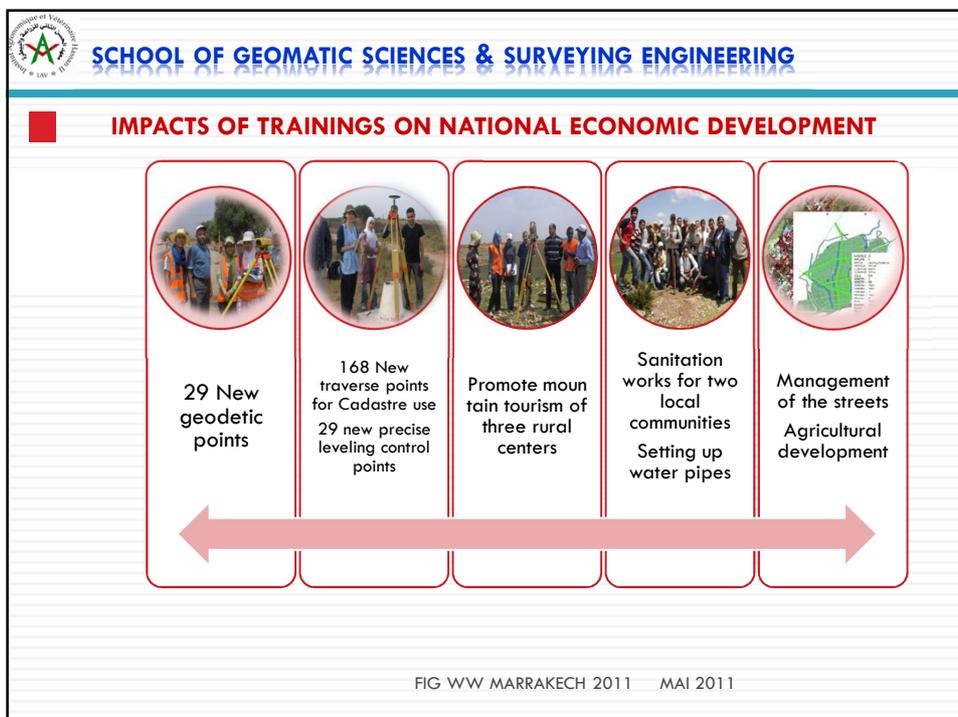
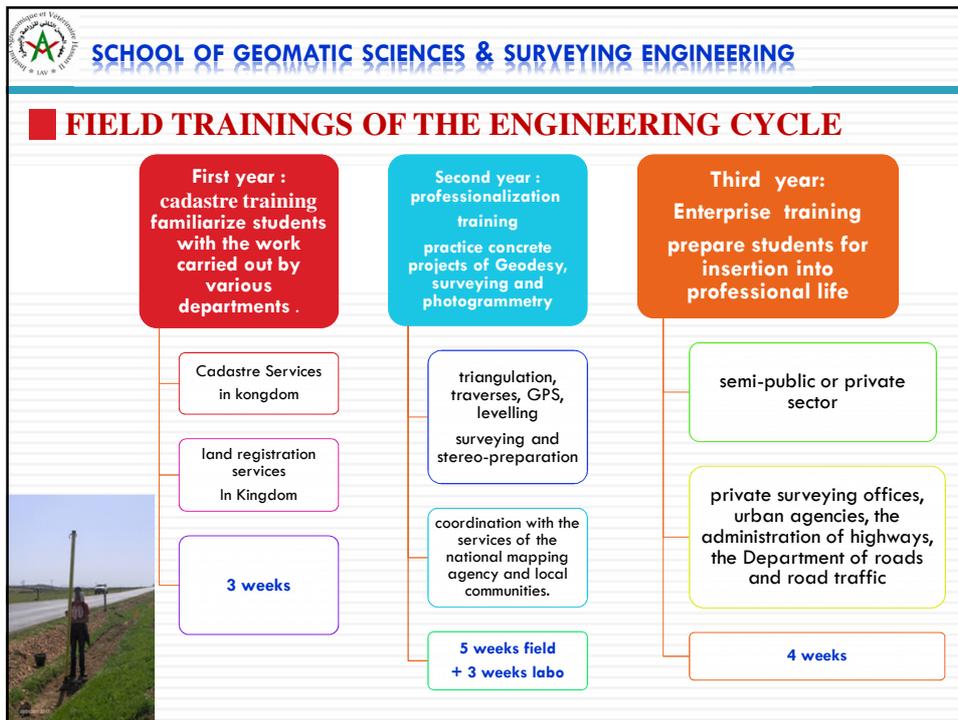
30%







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■ STUDYING VISITS

Objective: assist to the works realised within laboratories :

- Printing maps
- Digital mapping labo
- Photogrammetric restitution
- Archiving maps
- Dam buildings sites
- Highway building administration.
- Stability control of bridges
- Site Sanitation

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□ STUDYING VISITS

Stability control of bridges



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■ PRACTICAL PROJECTS

- Project of surveying
- Project cartography
- Photogrammetry
- GIS
- Database
- GPS
- Project of geomatic
- Remote sensing
- Sanitation ; Consolidation; Road project



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■ SEMINARS

Collaboration ONIGT

- Ethics of the profession
- Problems related to the exercise of the profession (law 30/93)
- Marketing
- Habitats law
- Internet & GIS
- Expropriation
- Land expertise
- GPS permanent stations/GNSS

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■ END OF STUDIES PROJECT

- ❑ Personal student full-time to study a topic or carry out a practical project in the fields of geomatics and surveying engineering.
- ❑ Topics identified and defined by professors in collaboration with partners in the sector.
- ❑ Writing a document that reflects bibliographic study of the theme studied, presentation and analysis of the results
- ❑ Student must defend his work publicly in front of a jury (professors and professionals)
- ❑ duration : last semester

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■ CONTINUING EDUCATION

The school gives importance to continuing education in order to:

- ❑ Follow the rapid technological evolution.
- ❑ Courses dedicated to meet the needs of the professionals
- ❑ Themes carried out between 2006 and 2010 :
 - ❑ Road projects , Arc GIS, remote sensing,
 - ❑ GPS for cartography, geodesy and surveying,
 - ❑ satellite imagery, Covadis 2D & 3D
 - ❑ Digital photogrammetry.



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RESEARCH

Some aspects :

- Up to 2005: 7 graduate doctorats
- 2010: Doctorate Research (2 Units)
- 24 demands, 8 accepted
- Specific research Conventions :
cooperation agreement with the ANCFCC consists in:
 - continuing education
 - conduct research development programs
 - scientific activities

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INTERACTION BETWEEN THE EDUCATIONAL SYSTEM AND THE PROFESSION

Two main partners

National Agency for Land conservation,
Cadastre and Cartography (ANCFCC)

National Order of Surveying Engineers (ONIGT)



Student sponsorship agreement with the ONIGT:

- Coaching students during school and after their graduation.
- Student is sponsored by a private enterprise
- After graduation, the sponsored undertakes, working within the enterprise of the sponsor for a period

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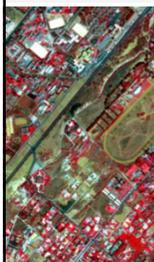
PARTNERS' CONTRIBUTION IN THE EDUCATIONAL SYSTEM

Contribution : participation of professionals in the realisation of some educational activities.

Activity	VH	Supervision	% part IGT
Related professional courses	75% Prof. related courses	Engineers from private and public	100%
Management courses	14% VHT	IGT & contractors	50%
Training in cadastre	3 weeks	ANCFCC	100%
Enterprise training	4 weeks	Private Ing	100%
End studies	16 weeks	IGT	30 %



CONCLUSION



- ❑ The school of geomatic sciences and surveying engineering is the unique school surveying engineers in Morocco.
- ❑ The school's staff is composed of professors that graduate from Canada, USA, Belgium and France.
- ❑ The school has a large and unique experience in the domain of education.
- ❑ Up to 2010, the school has formed more than 1000 engineers; around 5% of them are from Africa (Senegal, Burkina, Togo, Tunisia, benin...)



CONCLUSION : EMPLOYMENT MARKET

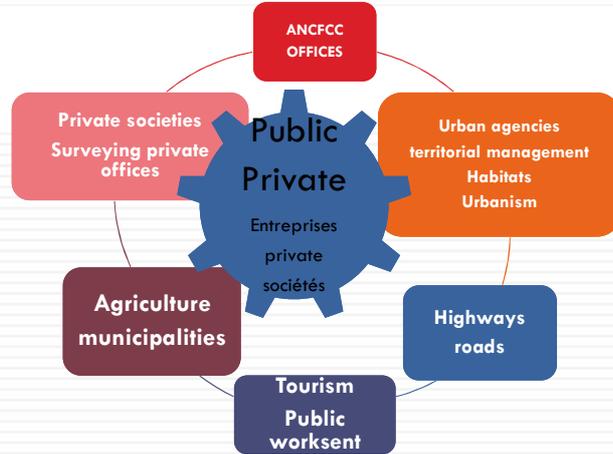


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Thank you for your attention



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