

**THE BOLOGNA DECLARATION:  
ITS CONSEQUENCES IN THE EDUCATIONAL  
AND PROFESSIONAL FIELDS IN SPAIN**

The establishment of the European System of Higher Education is the consequence of several meetings held by the politicians according to the following timetable:

SORBONE ( 1998)

BOLOGNA (1999)

SALAMANCA (2001)

BERLIN (2003)

**Main objectives:**

- To increase the international competitiveness of the European system of higher education.
- To ensure that the European higher education system acquires a world-wide degree of attraction equal to our extraordinary cultural and scientific traditions.
- To reach in the short term, and in any case within the first decade of the third millennium, the following objectives:
  - Adoption of a system of easily readable and comparable degrees (implementation of the **Diploma Supplement**).

- Adoption of a system essentially based on two main cycles: **graduate and postgraduate**.
- Establishment of a system of credits - such as in the **ECTS system**. (**1 credit ECTS = 25 – 30 hours student work**)
- Promotion of mobility for students, teachers and administrative staff.
- Promotion of European co-operation in quality assurance.
- Promotion of the necessary European dimensions in higher education

**Regarding the two cycles it is established:**

- Access to the second cycle shall require successful completion of the first cycle studies, lasting a minimum of three years.
- This cycle should consist of three or four years (180 or 240 ECTS)
- The degree awarded after the first cycle shall also be relevant to the **European labour market as an appropriate level of qualification**.
- The second cycle should lead to the master and/or doctorate degree as in many European countries. (**Nothing is said about professional qualifications given by this cycle**)
- This cycle should consist of one or two years (60 or 120 ECTS).

**APPLICATION IN SPAIN.**

LEGAL REGULATION: RR. DD 55 & 56, 25 JANUARY 2005

APRIL – MAY 2005: CATALOGUE OF GRADUATE UNIVERSITY DEGREES

RR. DD FOR EVERY NEW GRADUATE DEGREE

OCTOBER 2007: ALL UNIVERSITY DEGREES WILL BE ADAPTED TO THE NEW SYSTEM

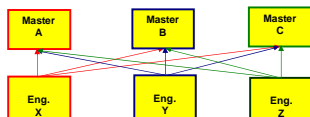
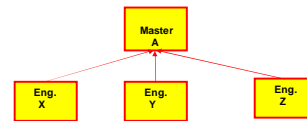
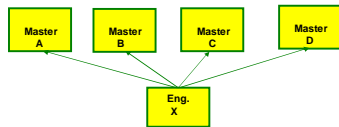
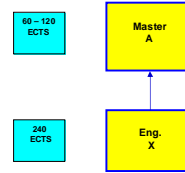
**POSTGRADUATE STUDIES:**

**EVERY UNIVERSITY WILL PREPARE ITS OWN POSTGRADUATE DEGREES**

**ENGINEERING STUDIES:**

- ONLY ONE NAME FOR DEGREE
- 240 ECTS + FINAL THESIS + PROFESSIONAL PRACTICE + LANGUAGES
- WITH SEVERAL ORIENTATIONS AND PROFILES TO FULFIL THE DIFFERENT NEEDS.

**POSSIBLE MODELS:**



SINCE THE MIDDLE OF 2003 ALL UNIVERSITIES WITH DEGREES IN SURVEYING AND THE PROFESSIONAL ASSOCIATIONS STARTED WORKING IN OUR "WHITE BOOK".

**THERE WERE THREE COMMISSIONS:**

- ACADEMIC COMMISSION
- PROFESSIONAL COMMISSION
- MOVILITY AND QUALITY COMMISSION

70% OF THE CURRICULUM WILL BE COMMON AND OBLIGATORY FOR EVERY UNIVERSITY WITH THIS DEGREE.

30% FREE FOR EVERY UNIVERSITY

**INFORMATION SOURCES:**

- INQUIRIES OF C. O. I. T. TOPOGRAFÍA
- THEMATIC EEGECS NETWORK
- TUNNING PROGRAMME
- ALFA NETWORK
- F. I. G.
- C. L. G. E.
- OWN INQUIRIES

**PROFESSIONAL FIELDS:**

- Project, development and management of Measurement Processes; modelling, representation and visualization of the physic characteristics on, under and over the terrestrial surface.
- Project, development and management of Information Systems.
- Project, development and management of processes of images use.
- Project, development and management of Navigation and Positioning Systems.
- Project, development and management of processes and products for Civil Engineering and Architecture.

- Project, development and management of processes and products for Environmental, Agronomic, Forestry and Mining Engineering.
- Project, development and management of processes and products for the Information Society: Telecommunications and Informatics.
- Project, development and management of processes and products for Cadastre and Registry.
- Project, development and management of processes and products for Land Management.
- Project, development and management of processes and products for Valuation.

**COMMON CORE CURRICULUM:**

FOUR BIG GROUPS OF SUBJECTS WERE CONSIDERED

- BASIC SUBJECTS
- COMMON SUBJECTS TO ENGINEERING
- SPECIFIC SUBJECTS TO THIS ENGINEERING
- COMPLEMENTARY SUBJECTS

GROUP I- BASIC(SUBJECTS) (34 ECTS)			
SPECIFIC SUBJECTS	CREDITS ECTS	Student Work Hours	
		Minimum Hours	Maximum Hours
MATHEMATICS	17	425	510
PHYSICS	8.5	212.5	255
COMPUTER SCIENCE	8.5	212.5	255
<b>Total</b>	<b>34</b>	<b>850</b>	<b>1020</b>

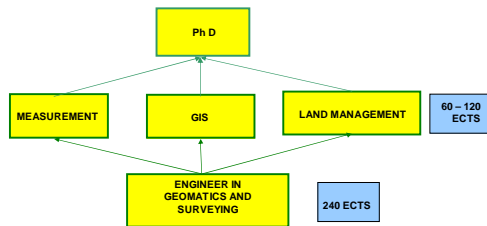
GROUP II- COMMON SUBJECTS TO ENGINEERING (27 ECTS)			
SPECIFIC SUBJECTS	CREDITS ECTS	Student Work Hours	
		Minimum Hours	Maximum Hours
CIVIL ENGINEERING	12.5	312.5	375
GRAPHIC ENGINEERING	3.5	87.5	105
ENVIRONMENTAL ENGINEERING	3.5	87.5	105
GEOMORPHOLOGY	3.5	87.5	105
ENGINEERING PROJECTS	4	100	120
<b>Total</b>	<b>27</b>	<b>675</b>	<b>810</b>

GROUP III: SPECIFIC SUBJECTS TO THIS ENGINEERING (100 ECTS)			
Specific subjects	CREDITS ECTS	Student Work Hours	
		Minimum Hours	Maximum Hours
SURVEYING	18	450	540
ADJUSTMENT	5	125	150
PHOTOGRAMMETRY AND REMOTE SENSING	18	450	540
CARTOGRAPHY	18	450	540
GIS	7	175	210
GEODESY AND ASTRONOMY	12	300	360
GEOPHYSICS	5	125	150
GNSS	7	175	210
CADASTRE AND LAND MANAGEMENT	10	250	300
<b>Total</b>	<b>100</b>	<b>2500</b>	<b>3000</b>

GROUP IV: COMPLEMENTARY SUBJECTS (7 ECTS)			
SPECIFIC SUBJECTS	CREDITS ECTS	Student Work Hours	
		Minimum Hours	Maximum Hours
LAW	3	75	90
ECONOMY	4	100	120
<b>Total</b>	<b>7</b>	<b>175</b>	<b>210</b>

IF FINAL THESIS IS OUT OF THESE OUR YEARS, THERE WILL BE ANOTHER SEMESTER WITH 30 ECTS CREDITS.

**THE NEW DEGREE IN SURVEYING.**



**PROFESSIONAL COMPETENCIES:**

- THE COMPETENCIES FOR THE ENGINEERS REPLACED BY THE NEW ONE
- THE PROFESSIONAL PROFILES ESTABLISHED IN THE “WHITE BOOK”
- THAT HAD BY OUR COLLEAGUES AROUND EUROPE (CLGE) AND THE WORLD (FIG)

**WHAT ABOUT THE PRESENT ENGINEERS ?**

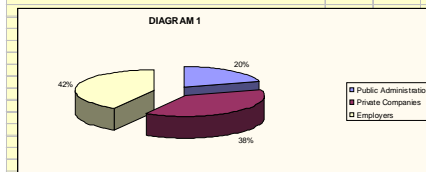
THE GOVERNMENT WILL ESTABLISH THE STEPS TO TRANSFORM THE PRESENT ENGINEERS TO THE NEW ONE.

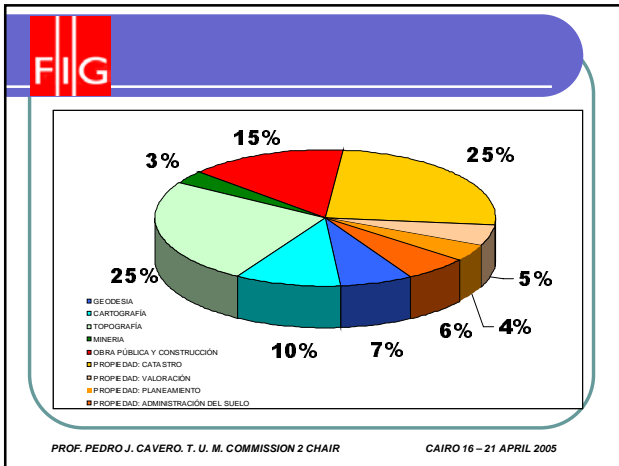
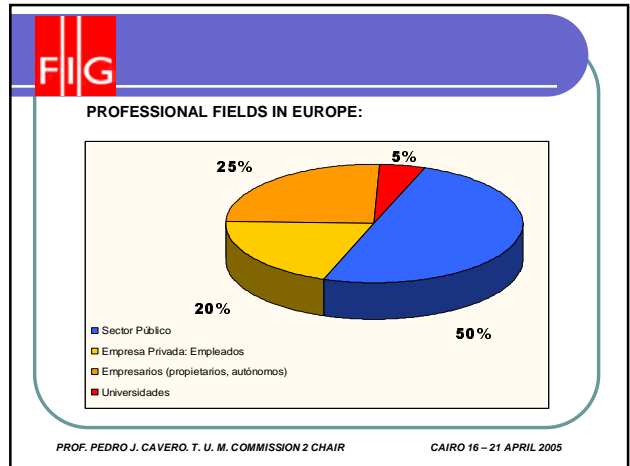
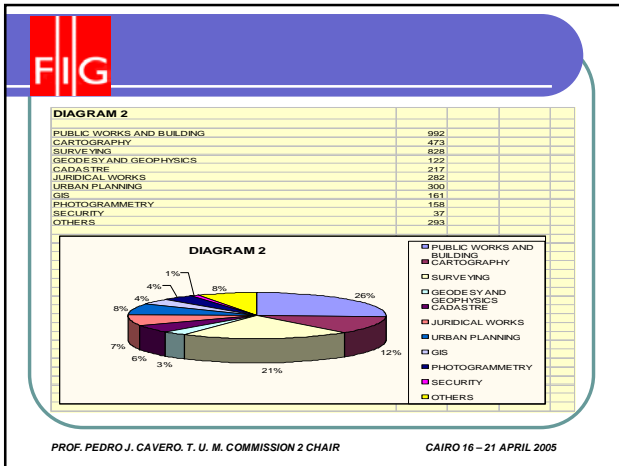
UNIVERSITIES AND PROFESSIONAL ASSOCIATIONS WILL PROPOSE THAT SUCH TRANSFORMATION BE WITHOUT COMPLEMENTARY STUDIES.

**THE NEW PROFESSIONAL SITUATION**

**TODAY PROFESSIONAL FIELDS IN SPAIN:**

DIAGRAM 1	
Public Administration	775
Private Companies	1478
Employers	1610

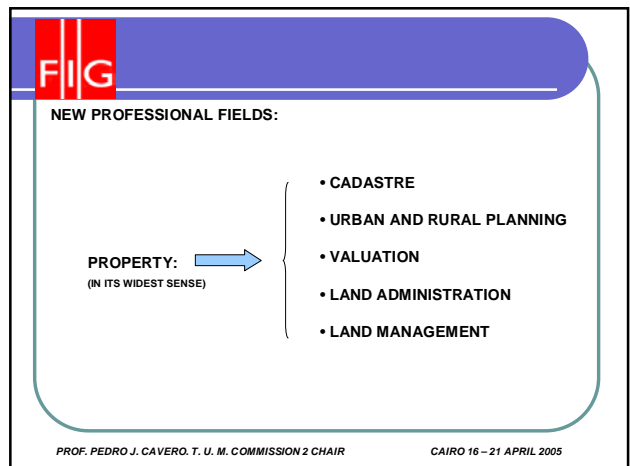
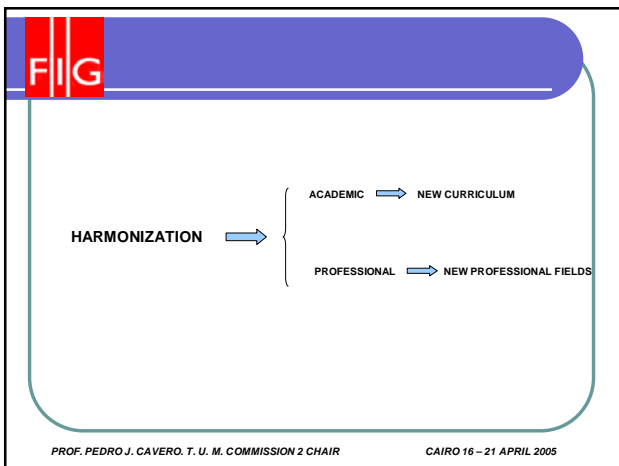




**FIG**

Country	AL	AUS	DK	FR	HOL	PO	SUE	SUI							
Professional Field															
Geodesy	17	5	5	5	15	10	5	10							
Surveying	12	5	40	15	20	20	10	10							
Cartography and GIS	14	30	10	12	5	12	10	5							
Land Management	Cadastre	25	20	25	25	10	20	25							
	Valuation	11	49	45	5	45	10	59	3	50	33	15	50	5	60
	Urban and Rural Planning	13	25	15	24	37	10	15	30						
Engineering Surveying	8	15			9	10	25	25	15						

PROF. PEDRO J. CAVERO, T. U. M. COMMISSION 2 CHAIR CAIRO 16 – 21 APRIL 2005



THE PROFESSIONAL PARADIGM

