



SEG Annual Meeting and International Showcase

GLOBAL TEATER

17–22 October 2010 - Denver, Colorado USA



“Bologna” Model and Geophysics in the Faculty of Geology and Mining

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- ***Faculty of Geology and Mining**
- **** Academy of Sciences of Albania**

Section of Geophysics has given great contribution in development of the geophysics in Albania in two directions:

- Engineers forming, their postgraduate qualification, and
- Scientific research.

Forming of geophysical engineers since 1961 and their postgraduate training was realized in the Branch of Geophysics, Section of Geophysics in Department of Earth Sciences, Faculty of Geology and Mining, Polytechnic University of Tirana.

The period of study has been **5 y. for Engineers, 1-2 y, Master, and 3 years PhD.** for:

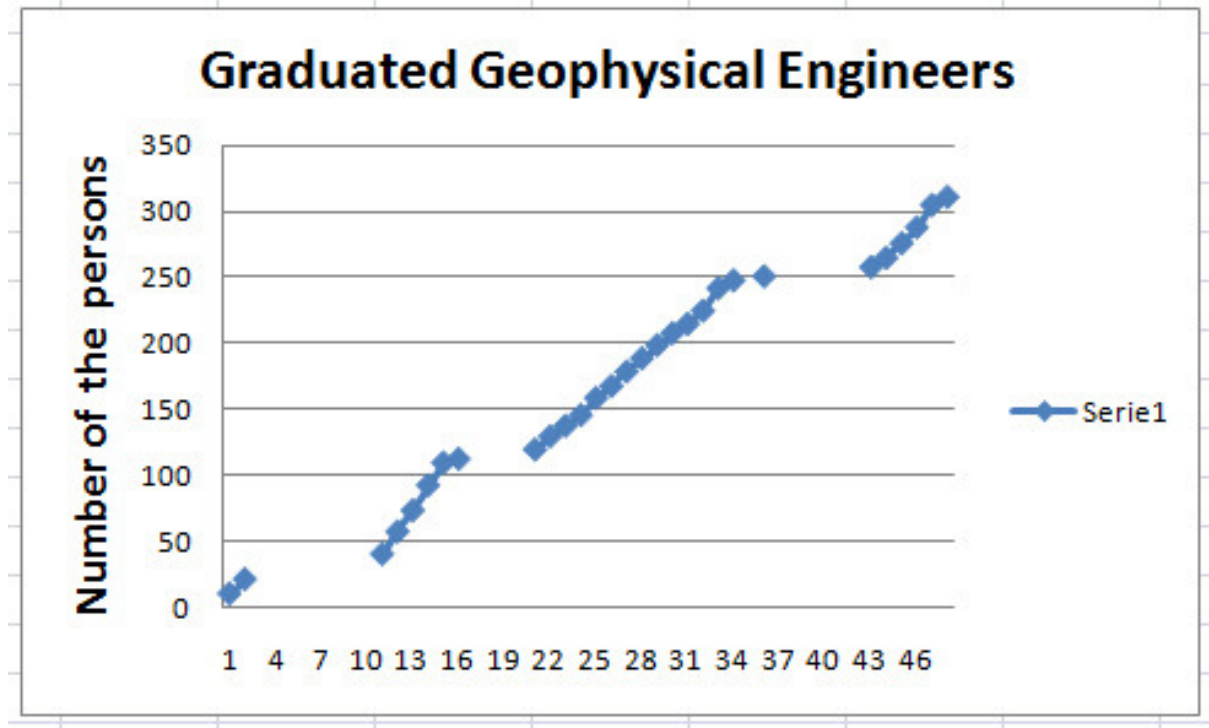
- exploration of the oil and gas reservoirs,
- exploration solid minerals deposits,
- hydrogeological research,
- engineering and environmental studies.

In the Framework of implementing the Bologna Protocol, is closed **Branch of Geophysics.**

Under the new curricula after **Bachelor Diploma** for Georesources and Geoinformatics – (**3 years**), **Scientific Master degree in Geophysics**, through option in the second year of the second cycle.

With this curricula, as have been prepared in implementation of Bologna Protocol, results level landing of the scientific and professional formation of geophysical engineer.

CONTRIBUTE OF THE FACULTY OF MINING FOR DEVELOPMENT OF THE GEOPHYSICS IN ALBANIA



GRADUATED PERSONS

Engineer Geophysicists 304

Dr. Sc. 45

Professors 7 Prof. Ass. 1

Research Leaders 9

Research Masters 12

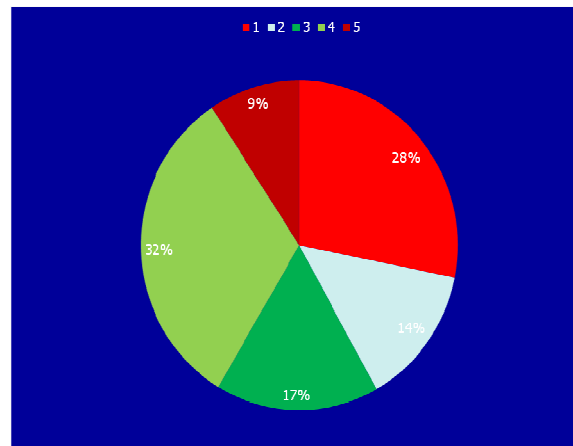
Improvement of the geophysical knowledge over the years

	1961-1964	1973-1978	2002-2005
Magnetic surveys	+	+	+
Gravity surveys	+	+	
Geoelectrical Exploration	+	+	+
Waves theory-seismics	+	+	+
Wave theory- seismics-seismology			+
Stratigraphic seismics			+
Engineering seismic s			+
Well logging	+	+	+
Radiometry	+	+	+
Signal processing			+
Physics of the Earth		+	+
Data processing and interpretation		+	+
Engineering geophysics			+
Environmental geophysics			+
Mining Geophysics			+
Geothermics			+

Improvement of the mathematical knowledge over the years

	1961-1964	1973-1978	2002-2005
Mathematic Analyzes	+	+	+
Analytic Geometry	+	+	+
Special Fis. Math. Equations and special functions	+	+	+
Linear Algebra		+	+
Statistics and Probability		+	+
Geostatistics			+
Informatics Programing		+	+
Numerical Analyzes		+	+

5 YEARS SYSTEM EGINNERING: GEOPHYSICAL ENGINEER, 2000-2004



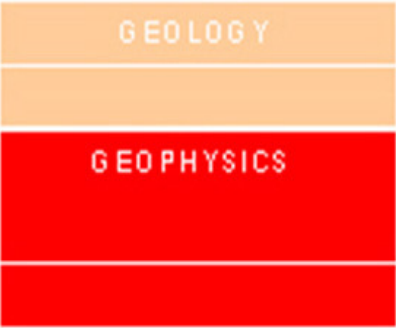
DISCIPLINES: 1. Theoretical; 2. Engineering; 3. Geological; 4. Geophysical; 5. Social

Teaching Curricula- Geophysical Branch (2000-2004)

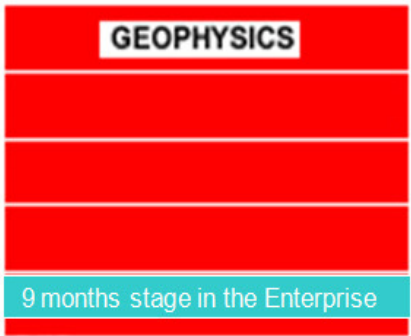
Nr	Discipline	Hours	Nr	Discipline	Hours
	Social disciplines			Geological disciplines	
1	Sociology	45	25	General geology	75
2	Physical educate	120	26	Paleontology, stratigraphy, historical geology	60
3	Foreign language	240	27	Geomorphology and Quaternary Geology	36
	Theoretical base disciplines		28	Mineralogy, petrography	120
4	Albegra and analytic geometry	120	29	Structural geology and geotectonic	111
5	Mathematical and numerical analyziz	330	30	Geology of solid deposits and their exploration	120
6	Statistics and probability	75	31	Petroleum geology and	144
7	Special equations of the physical mathematics	70	32	Hydrogeology and engineering geology	60
10	Informatics	120		Geophysical disciplines	
11	Geostatistics	48	33	Gravity survey	105
12	Physcs	255	34	Magnetic survey	91
13	General and physical chemistry	120	35	Geoelectrical survey	196
14	Signal Processing	90	36	Waves theory, seismic and seismology	274
	Engineering disciplines		37	Well logging	194
15	Geodesy and markshaidery	75	18	Nuclear geophysics and radiometric survey	133
16	Descriptive geometry and technical design		19	Physic of the Earth	60
17	CAD	45	20	Market economy basis	60
18	Engineering graphics	135	19	Optional disciplines	70
19	Theoretical and engineering mechanics	120	20	Problems of the geophysical explorations	
21	Electrotechnic and applied electronic	90	21	Problems of the reservoir study	
22	Geoinformative systems (GIS)	60	22	Geoengineering geophysics	
23	Mining and drilling technologies		23	Undeground geophysical survey	
			24	Environmental Geophysics	
				Total	4363
				Field practice	9 weeks

EVOLUTION OF THE TEACHING CURRICULA OVER THE YEARS

Teaching Curricula
1961-1964

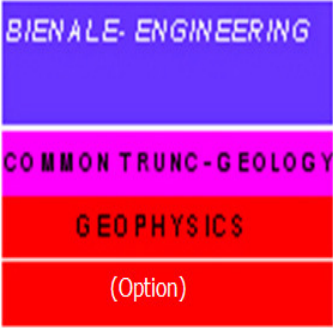


Teaching Curricula
1967-1988

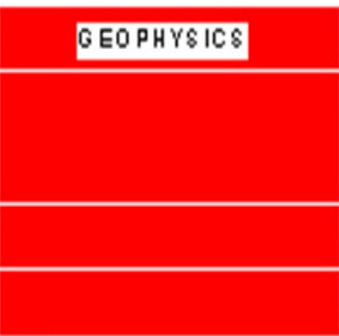


Years

Teaching Curricula
1992-1996

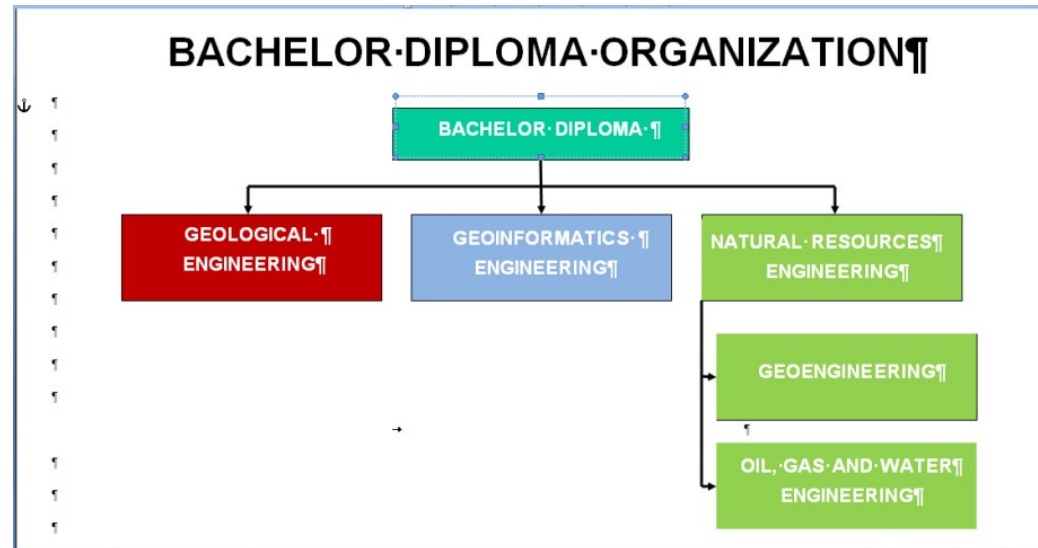


Teaching Curricula
2002-2005

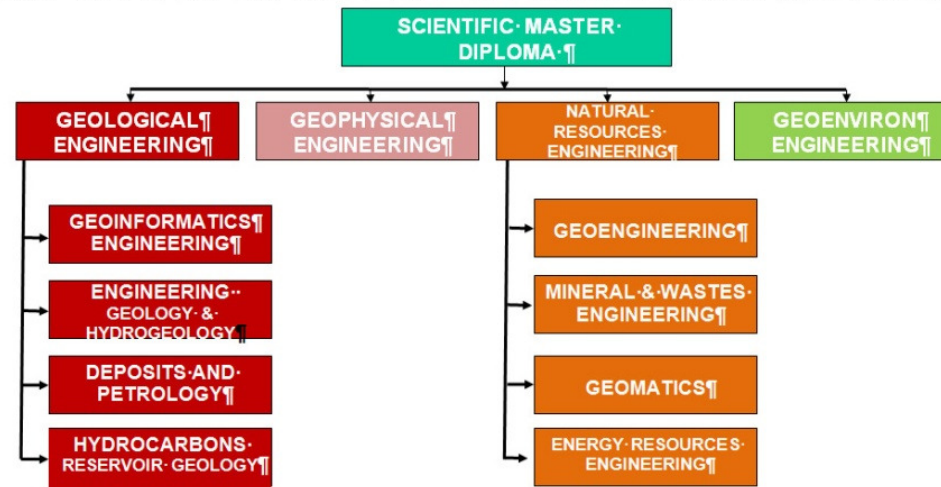


Years

GEOPHYSICS IN THE FACULTY OF GEOLOGY AND MINING IN FRAMEWORK OF THE BOLOGNA MODEL



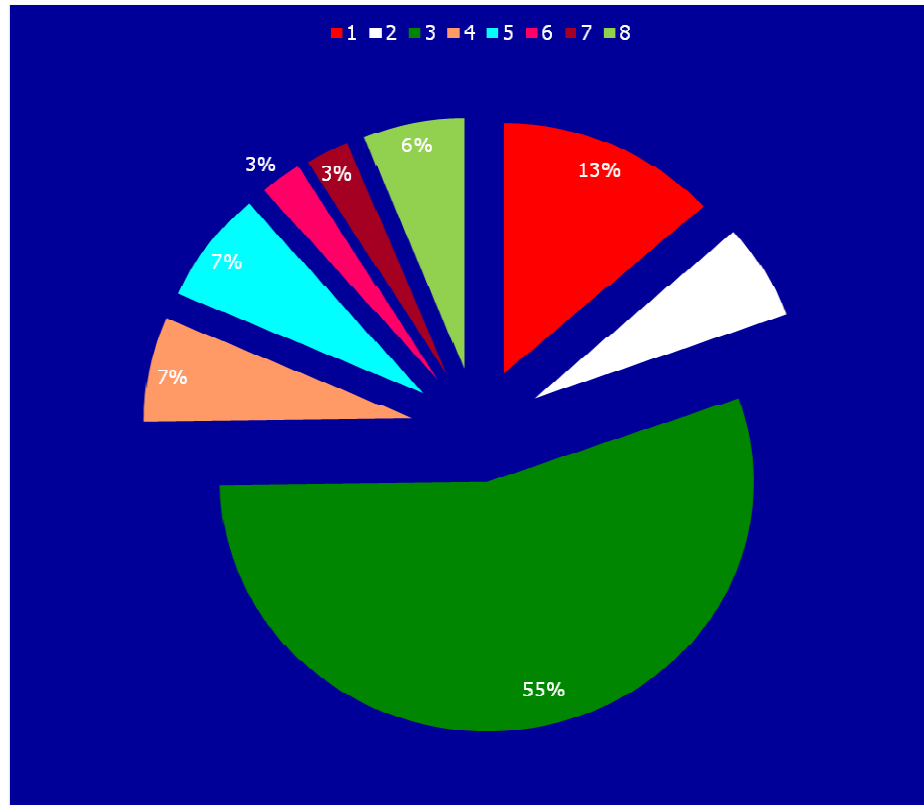
SCIENTIFIC-MASTER-DIPLOMA-ORGANIZATION¶



**BACHELOR-DIPLOMA¶
GEOLOGICAL-ENGINEERING¶**

I-YEAR¶	Disciplines¶	ECTS¶	Hours¶
1¶	Chemistry 1+2¶	8¶	102¶
2¶	Mathematic 1+2¶	8¶	102¶
3¶	Technical design + CAD¶	4¶	43¶
4¶	Geomatic¶	4.5¶	54¶
5¶	Physics 1+2¶	9¶	114¶
6¶	General Geology¶	3.5¶	48,5¶
7¶	Mathematical Statistics¶	5¶	63¶
8¶	Informatics¶	5¶	63¶
9¶	Paleontology – Historical Geology¶	5¶	77,5¶
10¶	Chrystalography¶ + Chrystalochemistry¶	3¶	34,5¶
11¶	Foreig Lanquege¶	5¶	66¶
Total¶	¶	60¶	768¶
II-YEAR¶	¶	¶	¶
12¶	Paleontology – Historical Geology¶	5.5¶	70¶
13¶	Optical Mineralogy¶	4.5¶	74¶
14¶	General Mineralogy + systematics + Methods¶	6.5¶	22¶
15¶	Petrology + Magmatic Petrography¶	8.5¶	155,5¶
16¶	Sedimentary ande metamorphic Petrography¶	5¶	82,5¶
17¶	Mechanic + Resistance of the materials¶	4.5¶	58¶
18¶	Sedimentology + Marine Geology¶	7.5¶	103,5¶
19¶	Stratigraphy¶	4.5¶	73,5¶
20¶	Geological Mapping¶	6.5¶	113¶
21¶	Structural Geology¶	7¶	103¶
Total¶	¶	¶	¶
III-YEAR¶	¶	¶	¶
22¶	Mechanic of medium continue¶	4¶	52¶
23¶	Geochemistry basis + environmental geochemistry¶	7¶	90¶
24¶	Applied Geophysics¶	10¶	152¶
25¶	Tectonic¶	5¶	64¶
26¶	Hydrogeology¶	4¶	52¶
27¶	Sedimentary Basins + Hydrocarbon reservoirs¶	4¶	52¶
28¶	Metallic Deposits, Economical Minerals¶	6¶	82,5¶
29¶	Regional Geology¶	6¶	78¶
30¶	Rocks and Soil Mechanics¶	3¶	38¶
31¶	Drilling and Mining Geotechnology¶	6¶	78¶
32¶	DIPLOMA¶	5¶	0¶
33¶	GIS and themai mapping¶	6¶	78¶
34¶	Environmental Geochemistry and hydrochemistry¶	4¶	52¶
Total¶	¶	60¶	739¶
¶	¶	¶	¶
¶	TOTAL for BACHELOR-DIPLOMA¶ GEOLOGICAL-ENGINEERING¶	180.00¶	2321.0¶

BACHELOR GEOLOGICAL ENGINEERING DIPLOMA



Matematike-Fizike; 2- Kimi; 3- Gjeologji; 4- Lende teknike specialiteti; 5- Lende te pergjitheshme teknike; 6- Informatike; 7- Gjuhe e huaj;
1. 8- Gjeofizike

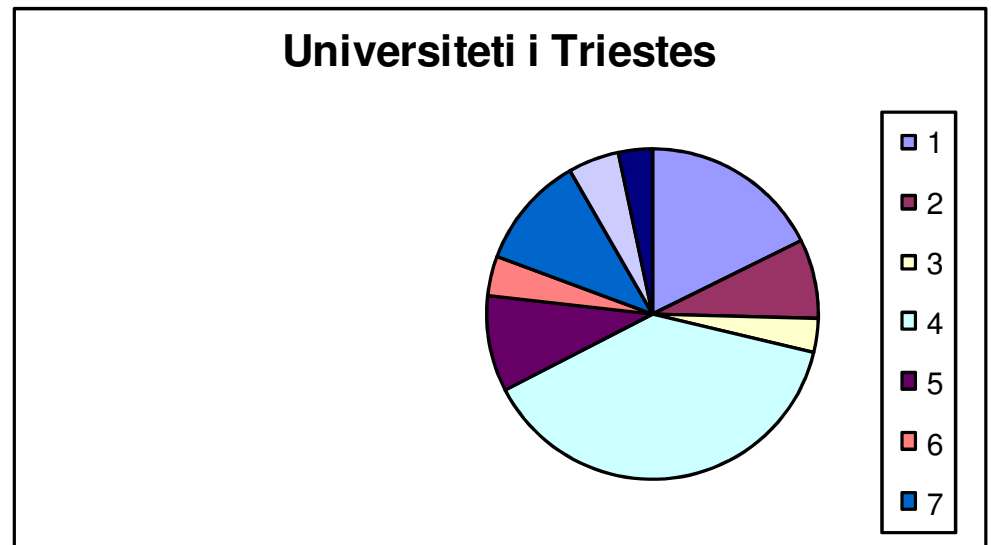
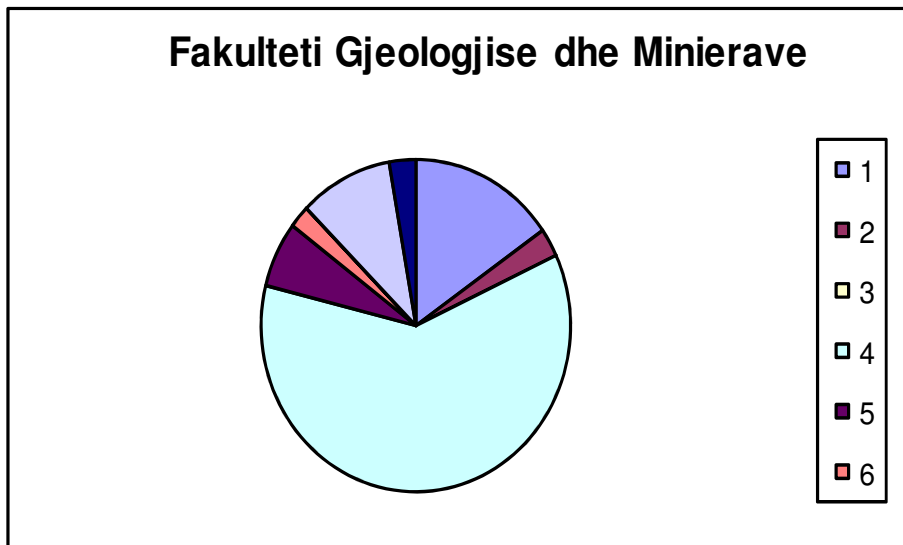
SCIENTIFIC MASTER DIPLOMA
GEOLOGICAL ENGINEERING
Speciality: GEOPHYSICAL ENGINEERING

Nr.	DISCIPLINE	ETC	HOURS
I-YEAR			
1	Electrotechnic & Electronic	4	48
2	Topography & GIS	4	54,5
3	Addendum in mathematic	11	121
4	Potential fields	11	140,5
5	Geoelectrical method	13	172
6	Theory of wave's scattering & seismology	10	108,5
7	Seismic of reflected and refracted waves-1	7	96
Total		60	644,5
II-YEAR			
8	Seismic of reflected and refracted waves-2	7	96
9	Nuclear physics and radiometry	7	80,5
10	Well logging	10	98,5
11	Digital processing and stratigraphic seismic	10	108,5
12	Geology of natural reservoirs	5	54
13	Optional discipline: --> Geophysics of natural resources --> Engineering and Environmental Geophysics e	6	62,5
Total		50	311
	TOTAL for Scientific Master on Geophysics	110	955,5

COMPARISON OF THE TEACHING CURRICULA EARTH SCIENCES BACHELOR DIPLOMA

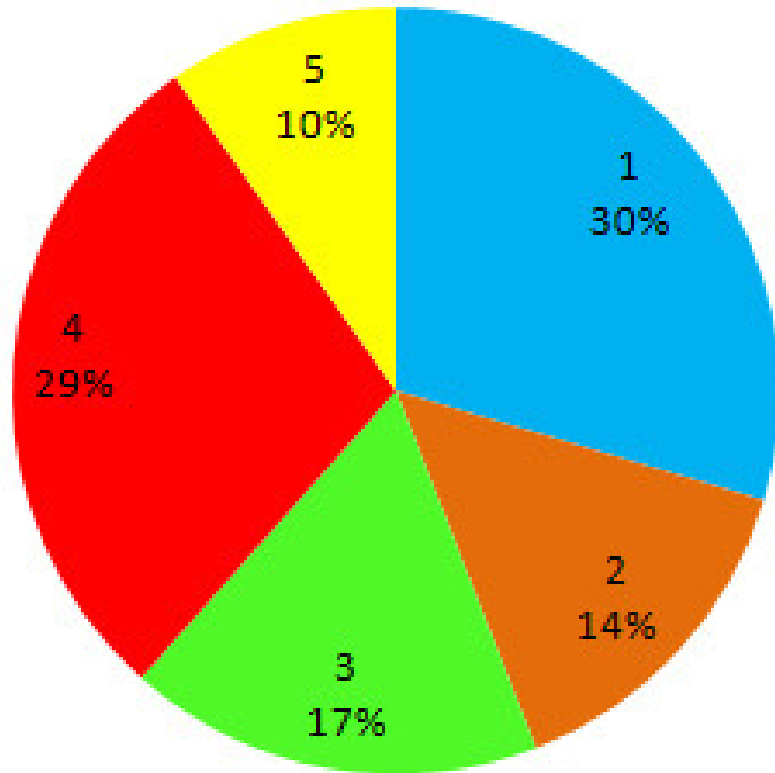
FACULTY OF GEOLOGY AND MINING

TRIESTE UNIVERSITY

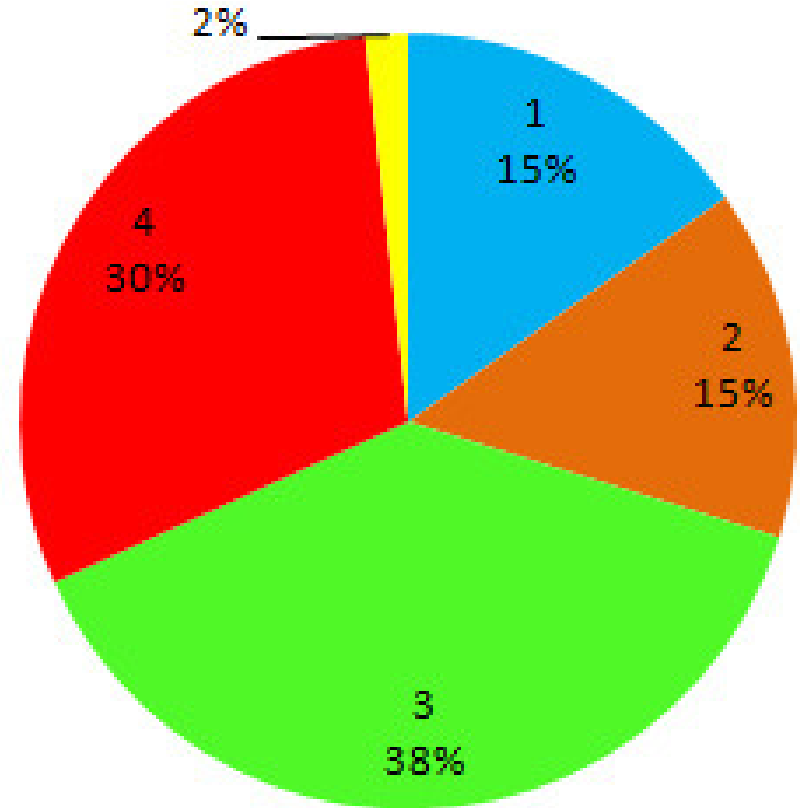


**DISCIPLINES: 1- Theoretical; 2- Engineering; 3- Nature; 4- Geographical;
5- Geophysical; 6- Social; 7- Independent work; 8-Stage; 9- Diploma**

**COMPARISON OF THE TEACHING CURRICULA
5 YEAR SYSTEM
2000-2004**



**BOLOGNA MODEL
2007-Now**



**DISCIPLINES: 1. THEORETICAL; 2. ENGINEERING; 3. GEOLOGICAL
4. GEOPHYSICAL; 5. SOCIAL**

Result that in the Framework of implementing the Bologna Protocol:
is closed Branch of Geophysics.

Under the new curricula, after the first three years of common cycle:

(Diploma Bachelor for Georesources and Geoinformatics),

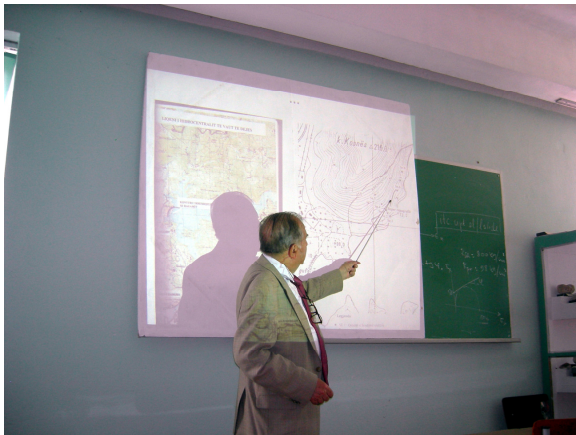
a **geophysical option** is in the second year of the **Scientific Master degree**.

With this curricula, , as have been prepared during the implementation of Bologna Protocol, results level landing of the scientific and professional formation of geophysical engineer.

TEACHING STRUCTURE

Learning process is developed by giving of the proper importance to all its elements:

- 1. Lectures,
- 2. Practical lessons: a) The laboratory,
b) Seminars,
c) Solutions of exercises and project courses,
d) In the field,
- 3) Project diploma courses.



UNIVERSITY TEXT BOOX

19 books for Branch of Geophysics, 4 books for Geological Branch (in Albanian) University Publishing House, Tirana.

Geophysical Branch:

- Gravity Surveys, Exercises
- Magnetic Surveys, adoption
- Electrical Exploration
- Electrical Exploration, Exercises
- Waves Theory
- Seismic Exploration
- Well logging
- Radiometry
- Geophysical method application for solving of the geological problems
- Physical properties of the minerals and rocks
- Geophysical Equipment
- Some equipment for the direct current geoelectrical surveys

Geological, oil and Gas Engineers, Minig Engineers

- Applied Geophysics: v. 1. Gravity
 - v. 2. Magnetics
 - v. 3. Geoelectrical Methods
 - v. 4. Seismics and Radiometry
- Well logging
- Geophysical Methods for solving of the Mining Problems

Thank you very much for your attention!