2013

REPORT

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

School of Engineering and Architecture

Laurea Magistrale (Second cycle degree/Two year Master - 120 ECTS) in Environmental Engineering a.y. 2013/2014

Programme Director Prof. Stefano Gandolfi

Study Programme Report
Environmental Engineering
Programme ex D.M. 270/04 - Code 0939 - Class LM-35
School of Engineering and Architecture
Programme Director Prof. Stefano Gandolfi

Created in collaboration with Teaching and Learning Administrative Area (AFORM – Area della Formazione) – Quality Assurance Unit

Edited by *AAGG – University Web Portal Division* and *CeSIA – Web Technology Division*, with MultiPublishing technology

Release date: July 2013

Academic year of reference: 2013/2014

www.unibo.it/QualityAssuranceEn

INDICE

WHAT IS THE STUDY PROGRAMME REPORT?

What is the Study Programme Report?

The Study Programme Report provides updated information which is important for the purposes of Quality Assurance and is published annually by the University of Bologna.

The main aspects of the teaching programme are described in detail, with a view to assuring the principle of transparency and promoting self-assessment and continuous improvement processes.

The document provides a concrete overview of the features and results of the Study Programme for students, families, employers and so on.

For example, regarding the current issue of employment, it describes the learning outcomes and career opportunities; it also includes statistics on the percentage of employed graduates (D.4. Employment situation).

The document is organised into five sections and a glossary:

A. Presentation and prospects

Key information on the Study Programme, including the expected learning outcomes, career opportunities and further studies.

B. Teaching and Learning

The updated course structure diagram with the full titles and listings of the course units and the latest published lecture timetable.

C. Resources and services

The list of teaching staff and their relative curricula, the offices (secretariats), services (work placements) and infrastructures (libraries, laboratories) available to students.

D. The Study Programme in Figures

Key data shows how many students are enrolled, how many have been assigned additional learning requirements, how many drop out after the first year, how many graduate in line with the programme schedule, the opinions of attending and graduating students on the teaching programmes and information concerning graduate employment.

E. Find out more: the quality of your Study Programme

How the quality system applied to your Study Programme works. The quality system of your Study Programme is a set of processes and responsibilities adopted to guarantee the quality of all Study Programmes at the University of Bologna.

NOTES:

- Reports are available for all Study Programmes for which it is possible to enrol in the first year in academic year 2012/2013: the information and data provided is as updated as possible.
- Sections A, B and C provide data for the academic year 2012/2013.
- Section D presents data regarding the Study Programmes in the last three academic years.
- The information and data were taken from the University databases and the reports published by the Statistical Observatory of the University of Bologna and AlmaLaurea, and are updated to **15 June 2012.**

A. PRESENTATION AND PROSPECTS

This section presents the key information concerning the Study Programme, including the expected learning outcomes, career opportunities and further studies, updated to the academic year 2013/2014.

A.1. PRESENTATION

This paragraph provides information on the specific learning outcomes of the Study Programme and the curriculum.

The 2nd cycle degree programme in Environmental and Territory Engineering specifically aims to offer an in-depth study programme allowing students to acquire full command of the methodological and operational aspects of basic sciences and engineering, privileging the specific aspects of environmental and territorial engineering.
Graduates will be able to study the features of the principal methods, techniques, equipment, systems and infrastructure for the design, execution, management and monitoring of works which imply even highly complex modifications to the biosphere, with particular reference to the layer of the earth affected by anthropic functions and in which the resources of current and potential interest to man can be found.
The study programme is highly multidisciplinary and multi-sectoral, starting with a broad common knowledge base, and targets three main learning outcomes suited to working in the following sectors:
- open air and underground excavations, soil and rock logging, for the advanced design of tunnels and other civil and mining works. They also develop the innovative scientific and technological aspects concerning the cultivation and valorisation of geo-resources, aimed at the sustainable production of raw materials and industrial materials. The programme highlights the innovative aspects of worksite design and safety, the innovative processes for the treatment and recycling of demolition materials and the environmental impact of mining activities. In the underground fluids area, the programme produces highly specialist technicians able to use the most advanced methods and techniques for the exploration, research and production of fluids present in the subsoil (hydrocarbons, water, geothermal fluids) and in particular focuses on: single- and multi-phase motion and the transport of soluble and non-soluble substances; the most advanced techniques for the protection of underground water resources and relative clean-up activities; soil sampling techniques using different kinds of investigations.
- environmental risk analysis, with reference to particularly complex conditions caused by anthropic settlements and activities. The overall assessment aims to cover: as part of the advanced design activities, environmental impact studies concerning the implementation, operation and decommissioning phases of activities, including the risk of any incidental events and the environmental destination of pollutants; during operations, the development of advanced environmental management, safety and monitoring systems for the many impact measuring parameters. The aforementioned study of techniques is complemented by an in-depth study of elements required for analysis, implementation and management of technological interventions to reduce emissions with the aim of mitigating the overall relative impact. Particular reference will be made to the most innovative operations to reduce liquid, gassy, solid and noise emissions at source, innovative purification plants for the treatment of both civil and industrial liquid waste and gassy waste, waste disposal and recycling, reclamation of polluted sites using the most advanced techniques.
- the most innovative interventions for territorial protection and reclamation, through the prevention and monitoring of natural and/or anthropic territorial damage. Among these, the forecasting, prevention and monitoring of hydrogeological risk, the reclamation of hydrographical basins and waterways, coastal process management, civil defence, monitoring of territorial evolution and in particular landslides, as well as the surveying, management, monitoring and protection from natural risks (seismic, volcanic and geomorphologic), and finally the evaluation of the environmental impact of complex engineering works.
The achievement of these objectives is assured through a teaching programme which not only provides a solid background in physics and mathematics, but assures the development of specific professional and operational skills in all core disciplines of Environmental and Territory Engineering; in particular it refers to the protection of the soil and the territory, environmental techniques and technologies, georesources and geotechnologies. The course curriculum provides ample room for autonomous learning activities concerning exercises, laboratory work for the production of design work and study of specific subjects, which allow students to develop strong skills in the design, execution, management and monitoring of even highly complex works.

A.2. ADMISSION REQUIREMENTS

This paragraph provides information on the knowledge required for admission to the Study Programme.

Admission to the degree programme is subject to the possession of a first cycle degree or three-year university diploma worth at least 180 CFU, or other suitable qualification obtained abroad.
Admission to the 2nd Cycle Degree Programme is open to graduates who satisfy at least one of the following requirements:
1. first cycle degree, with at least the number of CFU credits described below:

- at least 54 CFU in the following core subject areas of Environmental Engineering degree programme regulations of the University of Bologna: GEO/02; GEO/05; ICAR/01; ICAR/02 ICAR/03; ICAR/04; ICAR/05; ICAR/06; ICAR/07; ICAR/08; ICAR/09; ING-IND/11, ING-IND/24; ING-IND/25; ING-IND/27; ING-IND/28; ING-IND/29; ING-IND/30

- at least 36 credits in the following subjects: ICAR/01, ICAR/02, ICAR/03, ICAR/06, ICAR/07, ICAR/08, ICAR/09, ICAR/20, ING-IND/08, ING-IND/09, ING-IND/10, ING-IND/11, ING-IND/22, ING-IND/24, ING-IND/25, ING-IND/27, ING-IND/28, ING-IND/29, ING-IND/30 , ING-IND/31, ING-IND/32, ING-IND/33, ING-IND/35
- at least 24 credits in MAT and FIS.

2. 1stcycle degree in class L-7 (Civil and Environmental Engineering) ex DM 270/2004 or class L-8 (Civil and Environmental Engineering) ex DM 509/1999 with a final degree score of at least 105/110. The same criteria apply also to 2nd cycle graduates in Italy under ex 270/2004 or ex DM 509/99 and gradates from five-year single cycle degree programmes in Italy: graduates from degree programme systems which did not apply a credit system shall be calculated according to an annual credit of 12 CFU and a semi-annual credit of 6 CFU.

3. university degree obtained abroad and deemed appropriate by the Degree Programme Board. Suitability is established according to the aforementioned criteria where it is possible to convert the degree score to the Italian system, and where the subject areas and number of credits obtained in each sector are easily identifiable. If conversion and/or identification are not possible, the students' career will be assessed by the Degree Programme Board.

Admission to students who do not possess the aforementioned requirements indicated in points 1, 2 and 3 is subject to the assessment of the Degree Programme Board based on the students' academic career (obtained credits, scores, final degree scores).

ASSESSMENT OFPERSONAL COMPETENCIES AND SKILLS

Personal competencies and skills are deemed acceptable for graduates who satisfy at least one of the following requirements:

1) final degree score of at least 88/110 (or 80/100);

2) minimum number of credits obtained in specific subjects, as shown below:

subject:
ICAR/01, ICAR/02; ICAR/03; ICAR/06, ICAR/07; ICAR/08, ICAR/09
at least 15 CFU.

subject:
ING-IND/22; ING-IND/24; ING-IND/25; ING-IND/27; ING-IND/28, ING-IND/29; ING-IND/30; ING-IND/35:
At least 15 CFU.

subject:
MAT/03, MAT/05, MAT/07:
At least 15 CFU

subject:
FIS/01
At least 9 CFU

Admission to the 2nd cycle degree in Environmental Engineering for students who do not possess the requirements indicated in points 1 and 2 is subject to the specific assessment by the Degree Programme Board of the students' academic career.

For students in possession of a university degree obtained abroad and deemed appropriate by the Degree Programme Board, for which the conversion of the degree score to the Italian system is possible, the criteria adopted are those applied to graduates in Italy; otherwise the students' academic career will be assessed by the Degree Programme Board.

A special Admissions session may be held for international students, with a Board appointed to assess the candidates' personal competencies and skills; this session will be compatible with the schedule established in the call for applications for study grants (which indicatively expires in May).

International students who pass the above-mentioned entrance exam are exonerated from the following assessment of their personal competencies and skills required for students generally.

A.3. LEARNING OUTCOMES

This paragraph provides information on the knowledge and skills students will have acquired by the end of the Programme.

KNOWLEDGE AND UNDERSTANDING:

2nd cycle graduates:

- will have appropriate knowledge of the methodological-operative aspects of basic sciences (mathematical analysis, geometry, physics, chemistry) and will be able to use this knowledge to interpret and describe even complex problems concerning the fields including in the specific objectives of the study programme or, more generally, multidisciplinary civil and environmental knowledge (geology-applied geotechnics, construction sciences and techniques, mining and underground fluid engineering, hydraulics and hydraulic constructions, topography and cartography, chemical engineering and chemical systems);
- will be able to critically interpret and solve even highly complex and difficult problems in the specific environmental and territory engineering field and generally averagely complex problems in related engineering fields.

The achievement of the ability to apply the above knowledge and understanding will be accomplished through the learning activities organised in the “Environmental and Territory Engineering” programme, supplementary and complementary activities as well as

further activities including work placement and laboratories. The teaching methods include participation in seminars and exercises in the classroom and in the laboratory, individual and group projects, guided self-study and autonomous study.
Assessment of the achievement of the described learning outcomes shall be mainly through tests, written and oral exams and project work.

ABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING:
2nd cycle graduates will be able to develop and support reasoning and solve complex environmental and territorial problems and to identify and focus on problems connected to more general issues and engineering problems. They will have an in-depth knowledge and full command of the techniques and tools used for advanced design, implementation and management of even complex environmental works and systems; in particular they will be able to:
- fully monitor environmental and territorial parameters;
- carry out innovative research in the exploration and production of (energy and other) fluids in the soil and subsoil;
- control and manage open air and underground excavations for civil and mining works in a fully autonomous manner;
- know and use the most innovative methods of soil defence, waste management, management of raw materials and environmental, geological and energy resources;
- fully autonomously evaluate environmental impact and compatibility of even highly complex plans and works.
The achievement of the ability to apply the above knowledge and understanding will be accomplished through the learning activities organised in the "Environmental and Territory Engineering" programme, supplementary and complementary activities as well as further activities including work placement and laboratories. The teaching methods include participation in seminars and exercises in the classroom and in the laboratory, individual and group projects, guided self-study and autonomous study. Assessment of the achievement of the described learning outcomes shall be mainly through tests, written and oral exams and project work.

JUDGEMENT SKILLS:
2nd cycle graduates:
- will be able to identify, formulate, study and solve the highly complex problems of the understanding the characteristics of the methods, techniques, equipment and management and control systems of works which imply complex environmental modifications;
- will be able to keep abreast of regulations, methods, techniques and instruments in the field of environmental engineering; will also be able to keep up to date in an international context.
The aforementioned judgement skills are accomplished through the learning activities organised in the "Environmental and Territory Engineering" programme, as well as further activities including work placement and laboratories and the preparation for the final examination. The teaching methods include participation in seminars and exercises in the classroom and in the laboratory, individual and group projects, guided self-study and autonomous study.
Assessment of the achievement of the described learning outcomes shall be mainly through tests, written and oral exams and project work.

COMMUNICATION SKILLS:
2nd cycle graduates:
- will be able to effectively communicate orally and in writing both in Italian and English (level B2);
- will be able to produce and interpret technical reports;
- will be able to "read", and autonomously produce internal company regulations and technical manuals;
The aforementioned communication skills are accomplished through the participation in core and supplementary learning activities as well as further activities including work placement and laboratories and the preparation for the final examination. The teaching methods include participation in exercises in the classroom and in the laboratory, individual and group projects and guided self-study.
Assessment of the achievement of the described learning outcomes shall be mainly through written and oral exams and project work.

LEARNING SKILLS:
2nd cycle graduates are able to keep abreast of the most innovative methods and techniques in the field of environmental and territory engineering. This will allow them to design and model, optimise and develop even complex methods, systems and equipment. They will be able to fully autonomously continue studies to a higher level.
The aforementioned learning skills are achieved through learning activities in the disciplinary fields laid down in the degree programme system and in particular the activities carried out partly in an autonomous manner.
The specific teaching methodologies include tutorials. Assessment of the achievement of the learning skills shall be through the various exams organised throughout the programme.

A.4. CAREER OPPORTUNITIES

This paragraph provides information on the occupational profile, functions and fields of employment available to graduates of this Programme.

Professional figure:
EXPERT ENVIRONMENTAL ENGINEER IN SOIL AND TERRITORIAL PROTECTION
Main functions:

- Designs even complex interventions for the protection against damage from natural and anthropic causes (works to protect against hydrogeological risks, reclamation of hydrographical basins and waterways, coastal process management).
- Designs advanced monitoring, surveying, management and control systems for natural risks (seismic, volcanic and geomorphologic).
- Autonomously applies knowledge of topography and geodesics for cartography operations, surveying and complex observations.
- Carries out analyses to assess the environmental impact of complex engineering works.
- Designs and monitors draining systems and works/strategies for the management of water resources.
- Fully autonomously carries out mathematical simulations of physical processes which govern complex problems of water flows in the soil and subsoil.
- Implements and analyses geotechnical, geognostic investigations and soil stability analyses in a fully autonomous manner.

Professional figure:
EXPERT ENVIRONMENTAL ENGINEER IN ENVIRONMENTAL TECHNIQUES AND TECHNOLOGIES
Main functions:
- Participates in environmental impact studies of civil works and industrial plants during the implementation, operation and decommissioning phases.
- Works in the technical departments of the civil service concerning all areas of environmental protection which fall within their competency.
- Collaborates with sector technicians to identify design, construction, maintenance, operating and shut-down methods for activities using the best techniques available to assure a high overall level of environmental protection.
- Is responsible for environmental management and/or safety programmes, the organisation and management of environmental control plans for activities which are subject to authorisation.
- Critically and fully autonomously intervenes in safety issues in process industries, indicating innovative methods and tools for assessment and problem solving.
- Identifies and quantifies the environmental impact of anthropic activity using forecasting models;
- Critically analyses, implements and manages even innovative technological interventions to reduce liquid, gassy, solid and noise emissions in civil and industrial waste treatment plants.
- Defines and autonomously manages technological interventions for waste disposal and recycling, as well as the reclamation of polluted sites.
- Designs, implements, tests and manages even complex environmental quality control systems. Also processes the data gathered for the purposes of environmental communication and the preparation of redevelopment plans.

Professional figure:
EXPERT ENVIRONMENTAL- MINING ENGINEER IN THE FIELD OF GORESOURCES AND GEOTECHNOLOGIES
Main functions:
- Designs and manages even complex open air and underground excavations for civil and mining works in a fully autonomous manner;
- Autonomously solves problems concerning the cultivation and valorisation of geo-resources, aimed at the sustainable production of raw materials and industrial materials.
- Designs and manages even complex safety works in civil and mining worksites.
- Designs advanced processes for the treatment and recycling of demolition materials and mining waste.
- Designs, coordinates and manages even complex activities relative to the exploration, research and production of fluids present in the subsoil (hydrocarbons, water, geothermal fluids).
- Autonomously simulates using mathematical models complex problems concerning single- and multi-phase motion of soluble and non-soluble underground fluids.
- Fully autonomously assesses georesources – with particular reference to the selection of areas, cubage, sample optimisation, space-time distribution maps, using geostatistic methods.

Career opportunities:
The main career opportunities for 2nd cycle graduates in Environmental and Territory Engineering involve businesses, public and private authorities and professional firms working in innovation and development in the fields of production, advanced design, planning, implementation and management of environmental and territorial works and control and monitoring systems, soil defence, management of complex systems (waste, raw materials, environmental, geological and energy resources), assessment of environmental impact and compatibility of even complex plans and works.
Equally important are career opportunities in the field of both safety engineering and civil defence and the civil engineering field generally.

A.5. OPINION OF SOCIAL PARTNERS AND POTENTIAL EMPLOYERS

This paragraph describes the outcome of the consultation with the representative employment and trade organisations.

This information is not available in English at this time.

A.6. FURTHER STUDIES

It gives access to thirdcycle studies (PhD/Specialisation schools) and to professional master'sprogrammes.

B. TEACHING AND LEARNING

This section describes the updated course structure diagram (for academic year 2013/2014), with the full titles and listings of the course units and the latest published lecture timetable.

B.1. COURSE STRUCTURE DIAGRAM

The link takes you to the Study Programme course structure diagrams. You can also access to each course unit content.

- Study plan: all course units in the programme

B.2. CALENDAR AND LECTURE TIMETABLE

The links take you to the teaching calendar (exam session and final examination session) and the lecture timetable (in Italian).

- Lecture timetable
- Exam sessions
- Final examination sessions

C. RESOURCES AND SERVICES

This section provides a list of teaching staff and their relative curricula and and description of the services available to students for the academic year 2013/2014.

C.1. TEACHERS

The paragraph lists the lecturers who teach in the Study Programme: from here you can access the personal web pages of each one (in Italian). Information updated to 28 May 2013 (in Italian).

Permanent teaching staff:

Antonioni, Giacomo
Archetti, Renata
Artina, Sandro
Bandini, Serena
Barbarella, Maurizio
Berry, Paolo
Bertin, Lorenzo
Bitelli, Gabriele
Boldini, Daniela
Bonduà, Stefano
Bonoli, Alessandra
Bonvicini, Sarah
Borgatti, Lisa
Bortolotti, Villiam
Brath, Armando
Bruno, Roberto
Castellarin, Attilio
Cozzani, Valerio
Di Federico, Vittorio
Fava, Fabio
Ferrari, Fausto
Fiorini, Maurizio
Gandolfi, Stefano
Gostoli, Carlo
Gottardi, Guido
Grandi, Alessandro
Grimaldi, Rosa
Lamberti, Alberto
Landuzzi, Alberto
Macini, Paolo
Mancini, Maurizio
Manzi, Stefania
Mentrelli, Andrea
Mesini, Ezio
Montanari, Alberto
Monti, Carlo
Motori, Antonio
Nocentini, Massimo
Sangiorgi, Cesare
Santarelli, Francesco
Spadoni, Gigliola
Stramigioli, Carlo
Tornabene, Francesco
Tugnoli, Alessandro
Villa, Mauro
Zama, Fabiana
Zanaroli, Giulio
Zanuttigh, Barbara

Contract teaching staff:

Bianchi, Alessandro
Colombari, Stefano
Conticelli, Elisa
Tabarelli, Davide
Yezzi, Anthony Joseph

C.2. STUDENT SERVICES: OFFICES

C.2.1. FUTURE STUDENTS

The link take you to the webpage which provides specific information about the offices and the services for the future students (in italian).

- Future students

C.2.2. ENROLLED STUDENTS

The link take you to the webpage which provides specific information about the offices and the services for the enrolled students (in italian).

- Enrolled students

C.2.3. INTERNATIONAL STUDENTS

The links take you to the reference Work Placement and International Relations office for the Study Programme, where available.

- International students

C.2.4. GRADUATES

- Graduates

D. THE STUDY PROGRAMME IN FIGURES

Information on students' starting their university careers, how many students are in line with the regular programme, opinions of students and graduates on the teaching programmes and information concerning graduate employment.
This section provides the data of the last academic years for the Study Programme (SP) and a comparison with similar Study Programmes. The University of Bologna has divided its Study Programmes into four groups:

- *BIOMEDICAL group: Study Programmes of the Schools of Pharmacy, Biotechnology and Sport Science; Medicine; Agriculture and Veterinary Medicine*
- *SCIENTIFIC-TECHNOLOGICAL group: Study Programmes of the Schools of Engineering and Architecture; Sciences*
- *SOCIAL SCIENCES group: Study Programmes of the Schools of Economics, Management, and Statistics; Law, Political Sciences*
- *HUMANITIES group: Study Programmes of the Schools of Arts, Humanities, and Cultural Heritage; Foreign Languages and Literatures, Interpreting and Translation; Psychology and Education*

The section presents the results of the Study Programme for the last three academic years.
Main data shows how many students enrolled, the number of students assigned OFA, how many drop out after the first year, how many graduate in line with the programme schedule, the opinions of attending and graduating students on the teaching programmes and information concerning graduate employment.
The information and data presented in this section, updated to 28 May 2013, were taken from University databases and AlmaLaurea.
Study Programmes may be subject to degree programme system modifications from one academic year to the next, and the data provided in this section may refer to a programme with a slightly different system to the one currently running (such as programme title, course structure diagram and list of lecturers). However, indicatively the data presents the general trend of the Study Programme over the past three years.
Most of the Study Programmes running at the University of Bologna have been reformed in compliance with DM 270/04, most of them from the academic year 2008/2009. For this reason for the previous academic years for some information, as opinion of the graduates and employment situation, are provided in the reports of those Programmes, on the paragraph D.5. refers to the Study Programmes as they were presented prior to the reform.

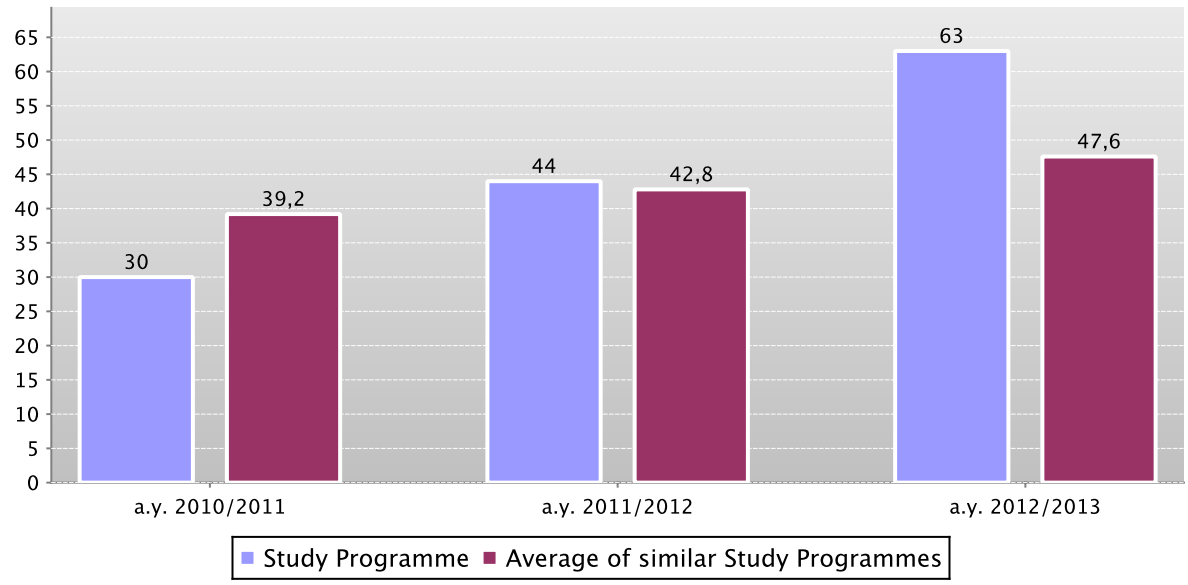
D.1. STUDENTS STARTING THEIR UNIVERSITY CAREERS

Characteristics of incoming students at the beginning of their study. Tables and graphs provide information on number of enrolled students (new careers), focusing on the characteristics of students and results of any entrance tests.

D.1.1. ENROLMENTS

The **graph** and the **table** show the number of new careers of the Study Programme compared with the average of similar Study Programmes (which belong to the same group), for the indicated academic years.

New careers



	a.y. 2010/2011		a.y. 2011/2012		a.y. 2012/2013	
	New careers	Total N. enrolled students	New careers	Total N. enrolled students	New careers	Total N. enrolled students
Study Programme	30	77	44	96	63	130
Average of similar Study Programmes	39,2	60,4	42,8	62,9	47,6	62,6

D.1.2. ADDITIONAL DATA ON STUDENTS' STARTING THEIR UNIVERSITY CAREERS

D.1.2.1. CANDIDATES REGISTERED FOR THE ENTRANCE EXAM

In academic year 2012/2013 access to this Study Programme was not restricted.

D.1.2.2. INCOMING STUDENTS

Geographic origin, type of 1st cycle degree, age and gender of students.
The data shows a homogeneus group of students (cohort) which started together their academic career.
Students which have passed to an other Study Programme, transferred from an other university, or registered to a 2nd degree are not included.
The **tables** show the number, geographic origin, gender, age, type and grade of 1st cycle degree of students enrolling in the degree programme.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated academic years.

			Geographic origin					Gender		Average age of new career students		
		New careers	Students coming from the province of the Study Programme site	Students coming from other provinces where Unibo has a site	Students coming from other provinces of Emilia Romagna region	Students coming from other Italian regions	Students coming from abroad	M	F	22 or less	23 - 24	25 or more
Students 2010/2011	Study Programme	30	26,7%	16,7%	10,0%	46,7%		63,3%	36,7%	40,0%	36,7%	23,3%
	Average of similar Study Programmes	39,2	26,0%	19,0%	8,2%	42,6%	4,3%	70,2%	29,8%	36,7%	42,3%	21,0%
Students 2011/2012	Study Programme	44	22,7%	18,2%	13,6%	43,2%	2,3%	59,1%	40,9%	20,5%	52,3%	27,3%
	Average of similar Study Programmes	42,8	25,6%	18,3%	8,1%	44,8%	3,2%	66,3%	33,7%	31,2%	46,7%	22,2%
Students 2012/2013	Study Programme	63	27,0%	15,9%	12,7%	39,7%	4,8%	50,8%	49,2%	25,4%	47,6%	27,0%
	Average of similar Study Programmes	47,6	27,9%	18,2%	6,2%	43,2%	4,6%	68,2%	31,8%	32,0%	44,7%	23,3%

		First Cycle Degree: University of previous studies				First Cycle Degree: more frequent class		First Cycle Degree: grade					
		University of Bologna	Other Italian Universities	Foreign University	Other not defined	Class code and name	% of students	First Cycle Degree grade between 66 and 90	First Cycle Degree grade between 91 and 100	First Cycle Degree grade between 101 and 105	First Cycle Degree grade between 106 and 110	First Cycle Degree grade 110 and honors	First Cycle Degree grade not available
Students 2010/2011	Study Programme	83,3%	16,7%			8 INGEGNERIA CIVILE E AMBIENTALE	93,3%	20,0%	46,7%	6,7%	16,7%	10,0%	
	Average of similar Study Programmes	75,1%	17,9%	0,6%	6,4%	10 INGEGNERIA INDUSTRIALE	25,3%	16,3%	31,8%	16,8%	14,2%	14,5%	6,4%
Students 2011/2012	Study Programme	75,0%	22,7%		2,3%	8 INGEGNERIA CIVILE E AMBIENTALE	56,8%	20,5%	50,0%	11,4%	9,1%	6,8%	2,3%
	Average of similar Study Programmes	71,3%	21,4%	0,4%	6,9%	10 INGEGNERIA INDUSTRIALE	15,9%	15,3%	34,0%	17,7%	13,6%	12,5%	6,8%
Students 2012/2013	Study Programme	68,3%	25,4%	1,6%	4,8%	L-7 INGEGNERIA CIVILE E AMBIENTALE	57,1%	19,0%	44,4%	11,1%	17,5%	3,2%	4,8%
	Average of similar Study Programmes	67,6%	15,8%	0,4%	16,3%	L-9 INGEGNERIA INDUSTRIALE	21,0%	16,4%	33,9%	12,8%	11,1%	9,5%	16,3%

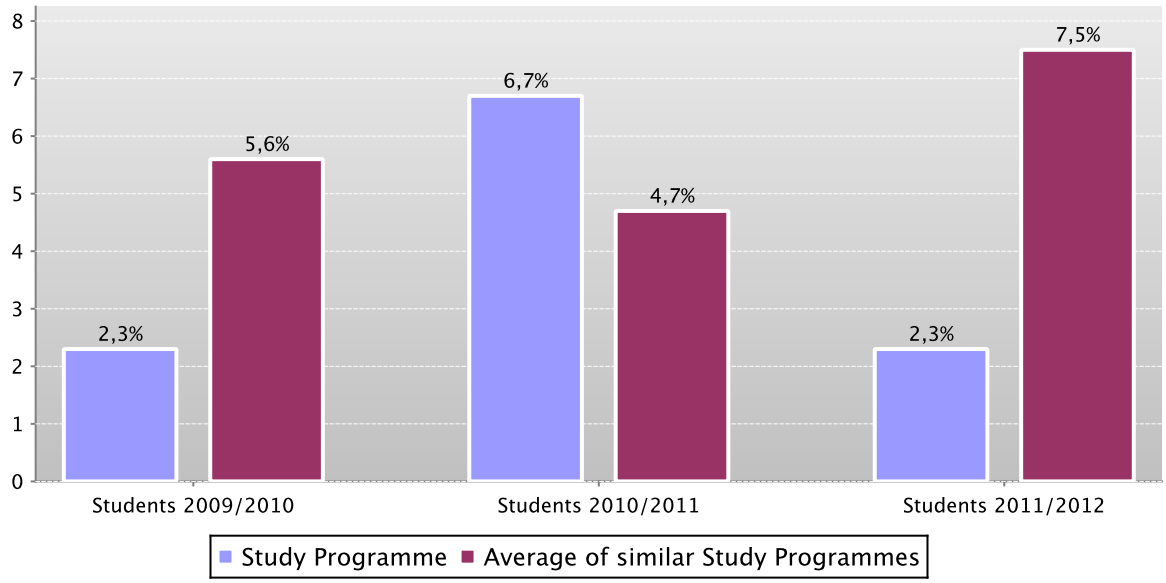
D.2. REGULARITY OF STUDIES

Insight into the regularity with which the students pass their exams. The graphs and the tables provide information on the number of students who leave the programme between the first and second year and the number of regular graduates, focusing on the number of credits obtained at the end of the first year, on the exams passed and average grade achieved for each course unit.

D.2.1. STUDENTS LEAVING THE PROGRAMME BETWEEN YEARS 1 AND 2

Here the number of students leaving the Study Programme is shown.
The **graph** shows the percentage of students who leave the programme after the first year compared to the average of similar Study Programmes (belonging to the same group).
The **table** shows the registered students (new careers), the percentage of students leaving the programme who pass to a different Study Programme in the same university, transfer to another university or withdraw from studies as well as the enrolled repeating students and those enrolled in the second year.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for students registered (new careers) in the indicated academic years.

Percentage of withdrawals between years 1 and 2

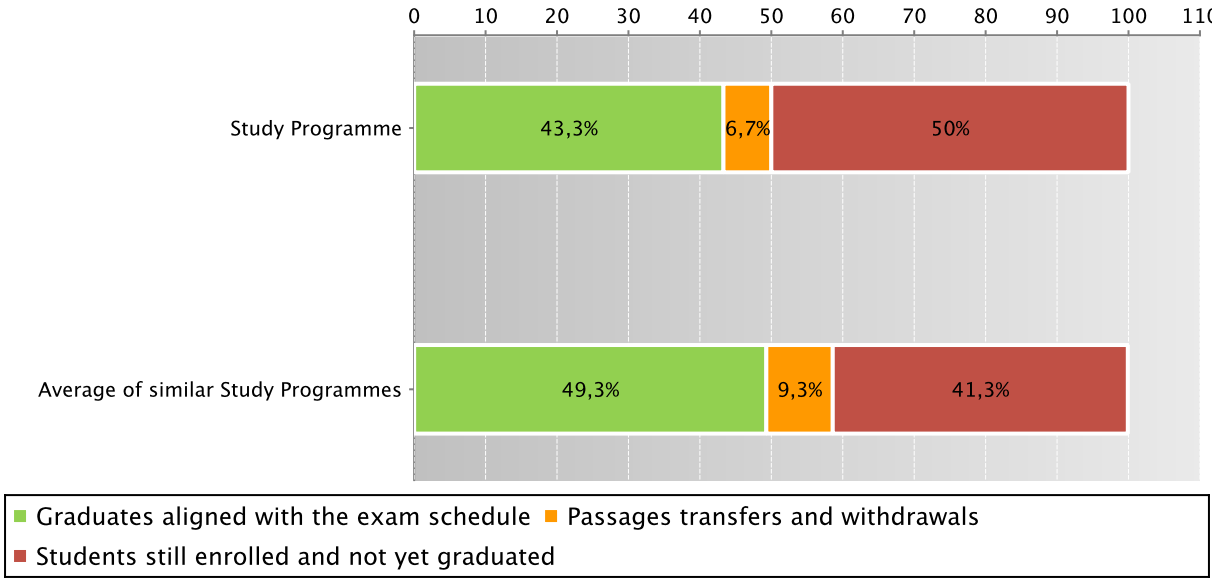


		New careers	% withdrawals	% passages and transfers	% repeating students	Students enrolled in the second year
Students 2009/2010	Study Programme	43	2,3%	0,0%	0,0%	42
	Average of similar Study Programmes	40,5	5,6%	0,8%	0,1%	37,9
Students 2010/2011	Study Programme	30	6,7%	0,0%	0,0%	28
	Average of similar Study Programmes	39,2	4,7%	0,7%	0,0%	37,1
Students 2011/2012	Study Programme	44	2,3%	0,0%	0,0%	43
	Average of similar Study Programmes	42,8	7,5%	1,3%	0,1%	39

D.2.2. REGULAR GRADUATES

Here you will find information on regular graduates, on how many students, at the end of the regular programme duration, left the programme and how many are still enrolled but not aligned to the exam schedule.
The **graph** and the **table** show the situation concerning the registered students (new careers) for the indicated academic year, at the end of the regular duration of the Study Programme, highlighting the percentage of regular graduates, the number of students still enrolled (not aligned to the exam schedule and repeating students), students who have left the programme (including passages, transfers and withdrawals).
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for students enrolled in the indicated accademic year.

Situation of students 2010/2011 at the end of regular duration of the study programme



		New careers	Regular graduates		Passages transfers and withdrawals		Students still enrolled and not yet graduated	
			N.	%	N.	%	N.	%
Students 2009/2010	Study Programme	43	22	51,2%	1	2,3%	20	46,5%
	Average of similar Study Programmes	40,5	17	42,0%	4,3	10,7%	19,1	47,2%
Students 2010/2011	Study Programme	30	13	43,3%	2	6,7%	15	50,0%
	Average of similar Study Programmes	39,2	19,3	49,3%	3,7	9,3%	16,2	41,3%

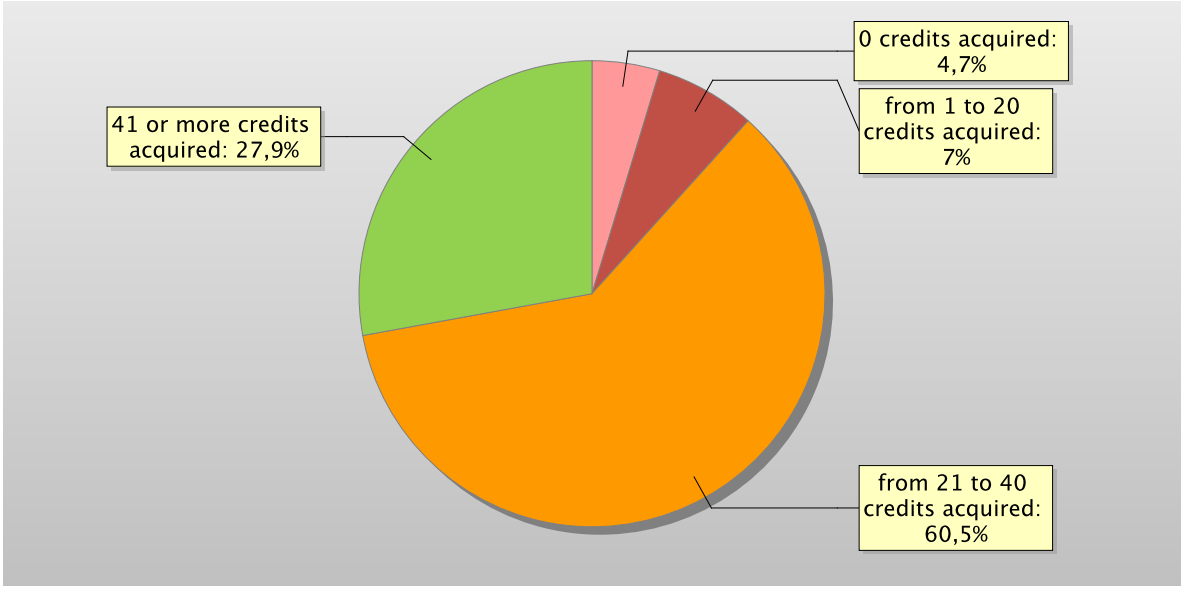
See data of previous academic years – Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450) paragraph D.5.2.2.

D.2.3. ADDITIONAL DATA ON REGULARITY OF STUDIES

D.2.3.1. CREDITS OBTAINED BY STUDENTS IN THE 1ST YEAR

This offers an insight into how regularly students pass their exams.
The **graph** shows the distribution of the students according to the number of credits obtained at the end of the first year.
In addition, the **table** shows the number of students registered at the second year and average credits obtained during the first year.
The Study Programme data is compared with the average of similar Study Programmes (wich belong to the same group), for students registered in the indicated academic years.

Distribution of the students in 2011/2012 according to the number of credits obtained at the end of the first year*



		Students enrolled in the 2nd year	% students with *				Average credits per student
			0 credits acquired	from 1 to 20 credits acquired	from 21 to 40 credits acquired	41 or more credits acquired	
Students 2009/2010	Study Programme	42	9,5%	14,3%	35,7%	40,5%	33,5
	Average of similar Study Programmes	37,9	8,1%	22,8%	42,5%	26,7%	29
Students 2010/2011	Study Programme	28	7,1%	14,3%	53,6%	25,0%	29,6
	Average of similar Study Programmes	37,1	6,8%	17,0%	45,8%	30,4%	31,2
Students 2011/2012	Study Programme	43	4,7%	7,0%	60,5%	27,9%	33,3
	Average of similar Study Programmes	39	3,1%	16,3%	45,0%	35,6%	33,9

*Note: by convention, credits are considered to be obtained by students by 31st October of the year following the year of enrolment.

D.2.3.2. EXAMS PASSED AND AVERAGE GRADE

The **table** shows number of exams passed and average grade achieved for each course unit in the calendar year 2011. Marks for the exams passed are expressed out of thirty.

The data refers to the course unit code and therefore includes the various branches of the programme divided into channels or sub-groups, divided by letter.

It considers all subjects for which a grade is assigned, and therefore excludes all those to which a pass/fail score is allocated.

The data concerning previous programmes is given in a separate section.

Data of the Study Programme D.M. 270/04 Ingegneria per l'ambiente e il territorio (code 0939)

	N. of exams passed	Average grade *
29156 AFFIDABILITÀ E SICUREZZA NELL'INDUSTRIA DI PROCESSO M	16	28,3
29188 MICROBIOLOGIA E BIOTECNOLOGIA PER IL DISINQUINAMENTO M	13	28,9
33948 VALORIZZAZIONE DELLE RISORSE PRIMARIE E SECONDARIE M	35	29,6
33957 METODI NUMERICI M	28	28,2
34479 ECOLOGIA INDUSTRIALE M	1	
34583 ECOLOGIA INDUSTRIALE E SVILUPPO SOSTENIBILE M C.I.	41	25,8
34584 AMBIENTE ED ENERGIA M	1	
34721 COSTRUZIONI IDRAULICHE E PROTEZIONE IDRAULICA DEL TERRITORIO M C.I.	49	27

	N. of exams passed	Average grade *
34724 PIANIFICAZIONE TERRITORIALE M	45	26,4
34741 GEOMATICA M	26	24,5
34742 INGEGNERIA MINERARIA M	6	23,8
34744 FLUIDI DEL SOTTOSUOLO M	1	
34750 IMPIANTI PRODUTTIVI E DI SMALTIMENTO RIFIUTI M	1	
34753 TECNOLOGIE DI RISANAMENTO DI SUOLO E SOTTOSUOLO M	15	29,1
34755 INGEGNERIA DEI GIACIMENTI DI IDROCARBURI M	4	
34758 MODELLI GEOSTATISTICI M	1	
34763 SICUREZZA DEL LAVORO E DIFESA AMBIENTALE M	24	29,2
34768 GESTIONE DELLE RISORSE IDRICHE M	1	
34769 TRATTAMENTO DELLA ACQUE REFLUE M	5	
34771 CONSOLIDAMENTO DEI TERRENI M	11	27,5
34773 IDRAULICA MARITTIMA M	16	26,9
34774 TECNICHE DI RILEVAMENTO PER IL MONITORAGGIO DEL TERRITORIO M	4	
34776 MODELLISTICA IDROLOGICA M	16	28,6
34778 VALORIZZAZIONE BIOTECNOLOGIA DEI RIFIUTI E DEGLI EFFLUENTI ORGANICI M	7	29,4
34782 FONDAMENTI CHIMICI PER LE TECNOLOGIE AMBIENTALI M	7	29,1
34784 PROGETTO DI OPERE DI INGEGNERIA SANITARIA M	17	29,2
34786 ESPLORAZIONE GEOLOGICA DEL SOTTOSUOLO M	2	
34818 TECNOLOGIE PER LA PROTEZIONE AMBIENTALE M	2	
34823 GEOLOGIA COSTIERA M	3	
34859 DIRITTO DELL'AMBIENTE M	46	26,9
37156 MODELLI NUMERICI PER LA GEOINGEGNERIA M C.I.	3	
37157 GESTIONE E TRATTAMENTO DELLE ACQUE M C.I.	16	28,6
37158 INGEGNERIA MINERARIA M C.I.	20	26,5
37159 PREVISIONI DI IMPATTO AMBIENTALE DI IMPIANTI PRODUTTIVI E DI SMALTIMENTO RIFIUTI M C.I.	14	28,9
69993 COSTRUZIONI IDRAULICHE E PROTEZIONE IDRAULICA DEL TERRITORIO M	1	

* Note: no average grade is given if the number of exams passed is less than or equal to 5.

D.3. OPINIONS OF GRADUATES AND ATTENDING STUDENTS

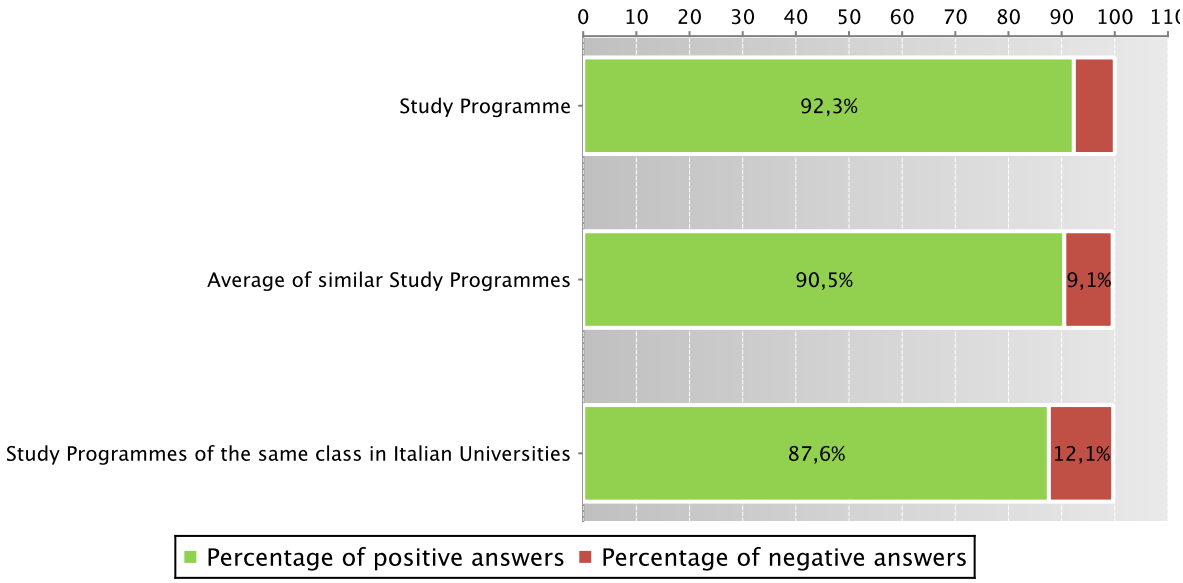
Opinions of graduates on the Study Programme.
Tables and graphs provide information on the number of graduates who expressed positive opinions on the Study Programme, focusing on opinions expressed by attending students on course units.

D.3.1. OPINION OF GRADUATES

The **graph** shows the percentage of graduates (AlmaLaurea survey) who responded positively to the question: "**Are you generally satisfied with the Study Programme".**
In addition, the **table** shows the percentage of students who answered "Yes, to the same programme at the university" to the question "Would you register again to the university?".
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), and the average of Study Programmes of the same class of other Italian universities for the graduates of the indicated years.

Graduates in 2012 who responded positively to the question: "Are you generally satisfied with this Study Programme?"

Data of the Study Programme D.M. 270/04 Ingegneria per l'ambiente e il territorio (code 0939)



Data of the Study Programme D.M. 270/04 Ingegneria per l'ambiente e il territorio (code 0939)

		N. graduates	Completed Questionnaires	% of positive answers to the question: "Are you generally satisfied with this Study Programme?"	% of answers "yes to the same Programme in the same University" to the question "Would you register again to the University"
2011	Study Programme	11	11	100,0%	72,7%
	Average of similar Study Programmes	20	19,4	90,0%	78,4%
	Study Programmes of the same class in Italian Universities	152	147	92,5%	77,6%
2012	Study Programme	26	26	92,3%	88,5%
	Average of similar Study Programmes	22	21,5	90,5%	78,6%
	Study Programmes of the same class in Italian Universities	363	347	87,6%	72,6%

Symbols:

(*) The opinions of the Study Programmes with less than 5 graduates are not shown.

Further information on Graduates' Profile Report.

See data of previous academic years – Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450) paragraph D.5.3.1.

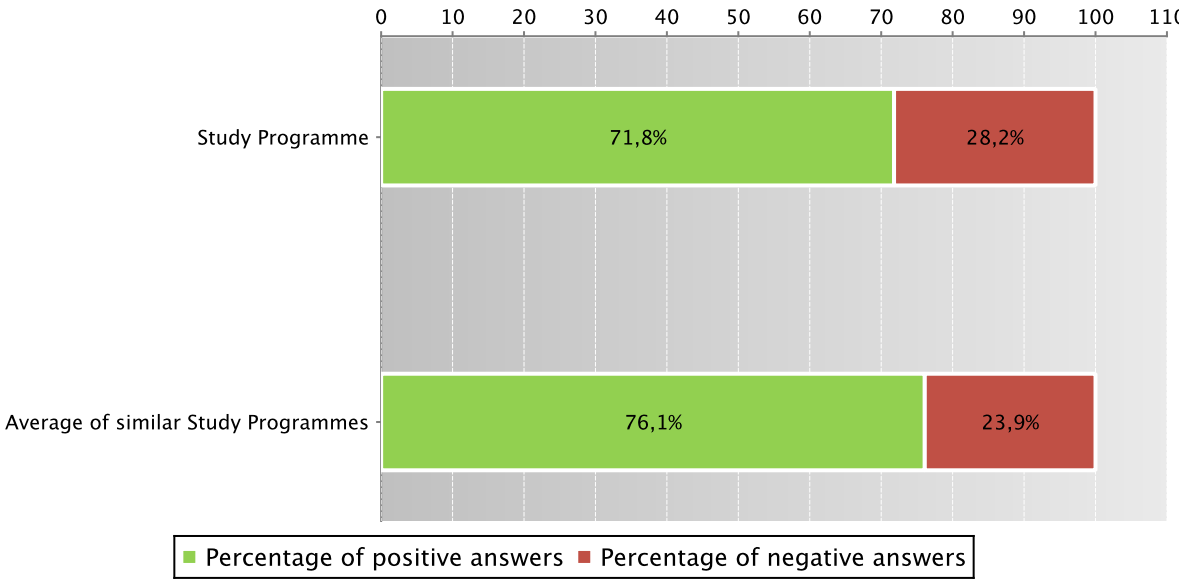
D.3.2 ADDITIONAL DATA ON OPINIONS OF STUDENTS

D.3.2.1. OPINION OF ATTENDING STUDENTS

The **graph** shows the percentage of attending students who responded positively to the question in the questionnaire: "Are you generally satisfied with this course unit?" in academic year 2011/2012.
The **table** also shows the number of completed questionnaires.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated academic years.
The data concerning the students' opinion refers to the opinions of those attending lessons, whether they are enrolled in the current programme or a Study Programme running under pre-reform regulations (under D.M. 509).
For the University of Bologna the survey and subsequently analysis of the opinions of students attending the course is cared by *Aform* - Quality Assurance Department and *Arag* - Support Planning and Evaluation Department. The overall results and the methods of collection and analysis are described in the document published online on the Statistical Observatory of the University of Bologna (see the note in the glossary).

Students who responded positively to the question: "Are you generally satisfied with this course unit?" in academic year 2011/2012

Data of the Study Programme D.M. 270/04 Ingegneria per l'ambiente e il territorio (code 0939) and of the Study Programme D.M. 509/99 Ingegneria per l'ambiente e il territorio (code 0450)



Data of the Study Programme D.M. 270/04 Ingegneria per l'ambiente e il territorio (code 0939) and of the Study Programme D.M. 509/99 Ingegneria per l'ambiente e il territorio (code 0450)

		Number of completed questionnaires	% of positive answers concerning the general satisfaction with the course unit – Question 19
a.y. 2009/2010	Study Programme	415	83,3%
	Average of similar Study Programmes	386,1	77,1%
a.y. 2010/2011	Study Programme	364	76,9%
	Average of similar Study Programmes	372,6	77,9%
a.y. 2011/2012	Study Programme	348	71,8%
	Average of similar Study Programmes	422,1	76,1%

Symbols:

(*) When there is a small number of questionnaires, the percentage of positive opinions on overall satisfaction is not presented.

Further information on Rapporto Opinione degli studenti frequentanti sulle attività didattiche (the content is in Italian).

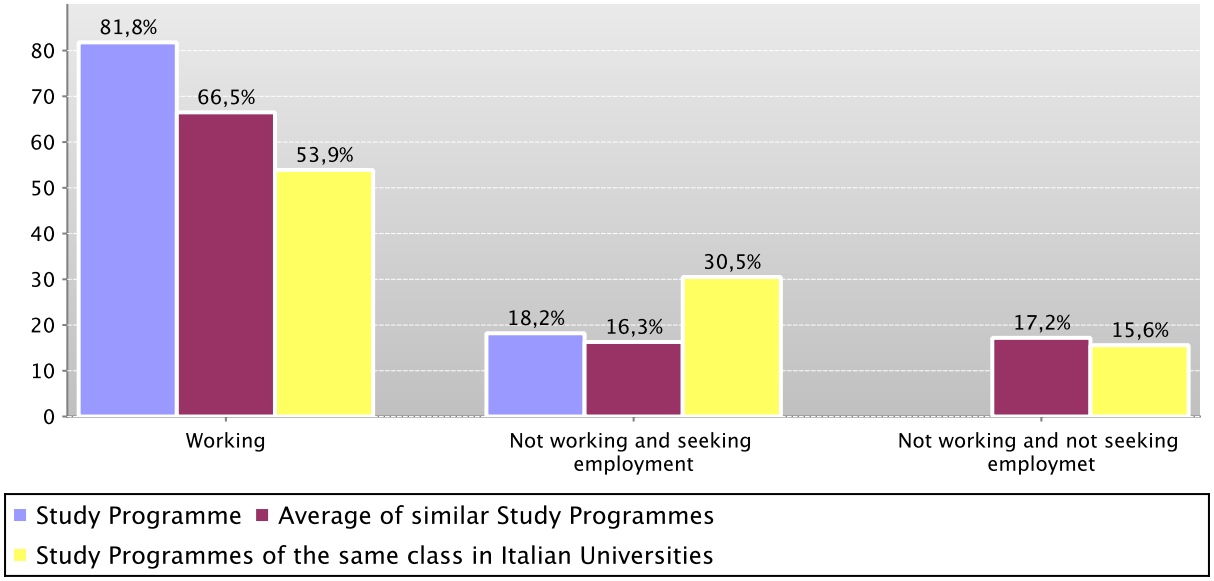
D.4. ENTRY INTO THE WORLD OF WORK

Employment situation of graduates of the Study Programme.
Tables and graphs provide information on the employment situation of graduates one year after graduating.

D.4.1. EMPLOYMENT SITUATION

The paragraph shows the employment situation of graduates one year after graduating.
The data is taken from the AlmaLaurea reports on the employment situation of graduates.
The **graph** shows who is working, who is not working and is not seeking employment, who is not working but is seeking employment.
In addition, the **table** shows the number of graduates interviewed, the number involved in internships and traineeships and the appropriateness of their degree to the job.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group) and the average of Study Programmes of the same class of other Italian universities for the graduates of the indicated years.

Employment situation of graduates in 2011 one year after graduating



		N. graduates interviewed	Employment situation (1)			Not working, not seeking employment, but following a university programme/traineeship (2)	Degree's appropriateness for the job (referred to the graduates who just work) (3)	
			Working	Not working and not seeking employmet	Not working and seeking employment		Effective / very effective	Quite effective
Graduation Year 2011	Study Programme	11	81,8%		18,2%		11,1%	44,4%
	Average of similar Study Programmes	17,8	66,5%	17,2%	16,3%	12,3%	58,1%	30,8%
	Study Programmes of the same class in Italian Universities	154	53,9%	15,6%	30,5%	11,7%	43,8%	36,3%

Symbols:

(*) The opinions of the Study Programmes with less than 5 graduates are not shown.

Notes on the AlmaLaurea report on the employment situation of graduates

(1) "Employment situation": the definition includes the number of employed graduates who declaring to carry out a paid work activity, provided that is not training activity (internship, traineeship, PhD degrees, specialization schools).

(2) "Number of those who do not work, who are not seeking employment but who are following a university programme/traineeship"**:** the definition includes those who are enrolled in traineeships, PhD degrees, specialisation schools, Italian "master universitari" (first and second level). The presentation of this data complies with article 2 of D.M. 544 of 31st October 2007, as later provided for in Management Decree no. 61 of 10th June 2008 (transparency requirements).

(3) The evaluation of the appropriateness of the degree is obtained by a combination of the requirement of the relative qualification for the job held and the level of usage of the skills learned at university.

Further information on Graduates' Employment report.

See data of previous academic years – Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450) paragraph D.5.4.1.

D.5. INFORMATION ON PRE-REFORM PROGRAMMES (DM 509/99)

D.5.1. STUDENTS STARTING THEIR UNIVERSITY CAREERS

Characteristics of incoming students at the beginning of their study. Tables and graphs provide information on number of enrolled students (new careers), focusing on the characteristics of students.

D.5.1.1. ENROLMENTS

Data of enrolments of the last three academic years are shown in paragraph D.1.1.

D.5.1.2. ADDITIONAL DATA ON STUDENTS' STARTING THEIR UNIVERSITY CAREERS

D.5.1.2.1. CANDIDATES REGISTERED FOR THE ENTRANCE EXAM

Data of candidates registered for the entrance exam are shown in paragraph D.1.2.1.

D.5.1.2.2. INCOMING STUDENTS

Data of incoming students of the last three academic years are shown in paragraph D.1.2.2.

D.5.2. REGULARITY OF STUDIES

Insight into the regularity with which the students pass their exams.
Graphs and tables provide information on the number of students who leave the programme after the first year and the number of regular graduates, focusing on the number of credits obtained at the end of the first year, number of exams passed and the average grade achieved for each course unit.

D.5.2.1. STUDENTS LEAVING THE PROGRAMME BETWEEN YEARS 1 AND 2

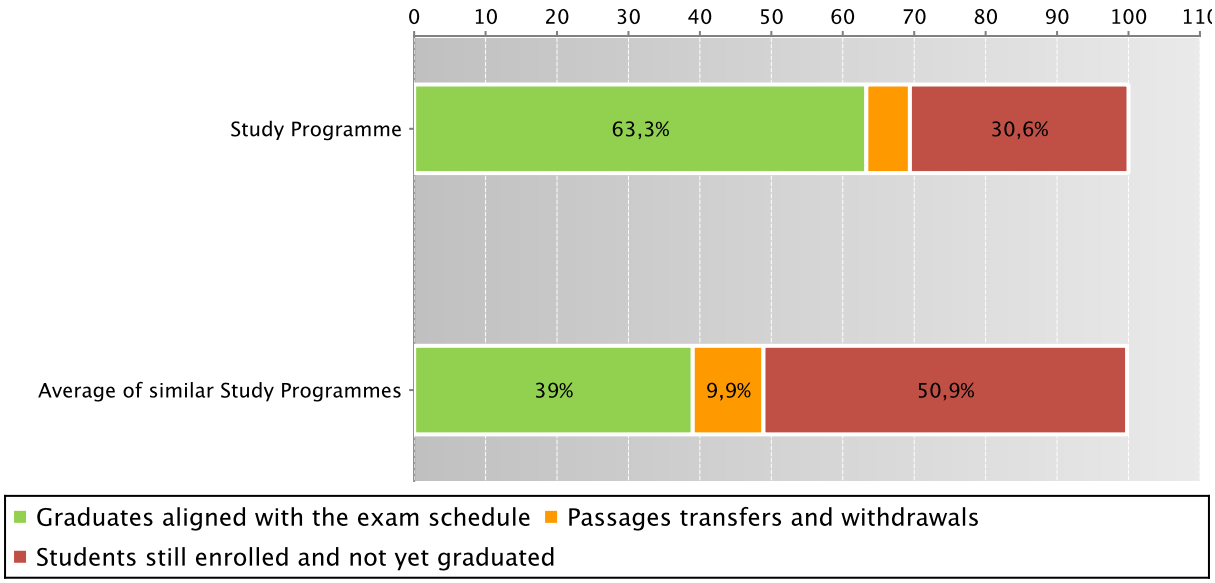
Data of students leaving the Study Programme of the last three academic years are shown in paragraph D.2.1.

D.5.2.2. REGULAR GRADUATES

Here you will find information on regular graduates, on how many students, at the end of the regular programme duration, left the programme and how many are still enrolled but not aligned to the exam schedule.
The **graph** and the **table** show the situation concerning the students enrolled at the first year (new careers) for the indicated academic year, at the end of the regular duration of the Study Programme, highlighting the percentage of regular graduates, the number of students still enrolled (not aligned to the exam schedule and repeating students), students who have left the programme (including passages, transfers and withdrawals).
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for students registered in the indicated academic years.

Situation of students 2008/2009 at the end of regular duration of the study programme

Data of the Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450)



Data of the Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450)

		New careers	Regular graduates		Passages transfers and withdrawals		Students still enrolled and not yet graduated	
			N.	%	N.	%	N.	%
Students 2008/2009	Study Programme	49	31	63,3%	3	6,1%	15	30,6%
	Average of similar Study Programmes	42,6	16,6	39,0%	4,2	9,9%	21,7	50,9%

Go back to D.2.2. Regular graduates

D.5.2.3. ADDITIONAL DATA ON REGULARITY OF STUDIES

D.5.2.3.1. CREDITS OBTAINED BY STUDENTS IN THE 1ST YEAR

Data of credits obtained by students in the 1st year of the last three academic years are shown in paragraph D.2.3.1.

D.5.2.3.2. EXAMS PASSED AND AVERAGE GRADE

Data of exams passed and average grade are shown in paragraph D.2.3.2.

D.5.3. OPINIONS OF ATTENDING STUDENTS AND GRADUATES

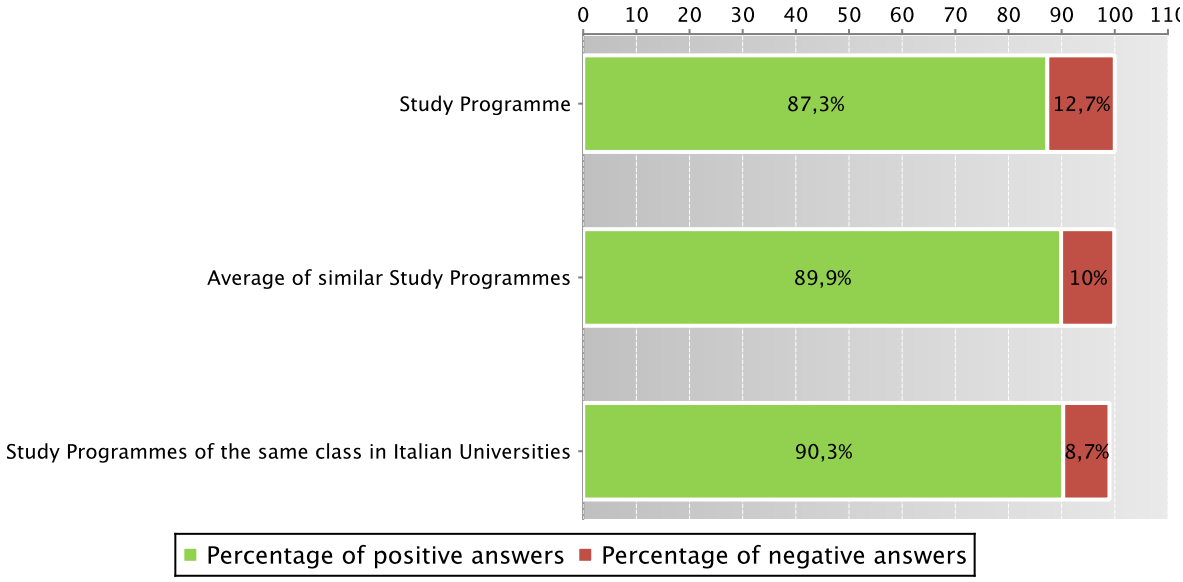
Opinions of graduates on the Study Programme.
Tables and graphs provide information on the number of graduates who expressed positive opinions on the Study Programme, focusing on opinions expressed by attending students on course units.

D.5.3.1. OPINION OF GRADUATES

The **graph** shows the percentage of graduates (AlmaLaurea survey) who responded positively to the question: "**Are you generally satisfied with the Study Programme**".
In addition, the **table** shows the percentage of students who answered "Yes, to the same programme at the university" to the question "Would you register again to the university?".
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated years.

Graduates in 2010 who responded positively to the question: "Are you generally satisfied with this Study Programme?"

Data of the Study Programme D.M. 509/99 Ingegneria per l'ambiente e il territorio (code 0450)



Data of the Study Programme D.M. 509/99 Ingegneria per l'ambiente e il territorio (code 0450)

		N. graduates	Completed Questionnaires	% of positive answers to the question: "Are you generally satisfied with this Study Programme?"	% of answers "yes to the same Programme in the same University" to the question "Would you register again to the University"
2010	Study Programme	55	55	87,3%	74,5%
	Average of similar Study Programmes	25,5	24,8	89,9%	78,6%
	Study Programmes of the same class in Italian Universities	733	682	90,3%	76,7%

Symbols:
(*) The opinions of the Study Programmes with less than 5 graduates are not shown.
Further information on Graduates' Profile Report.
Go back to D.3.1. Opinion of graduates

D.5.3.2 ADDITIONAL DATA ON OPINIONS OF STUDENTS

D.5.3.2.1. OPINION OF ATTENDING STUDENTS

Data of opinion of attending students of the last three academic years are shown in paragraph D.3.2.1.

D.5.4. ENTRY INTO THE WORLD OF WORK

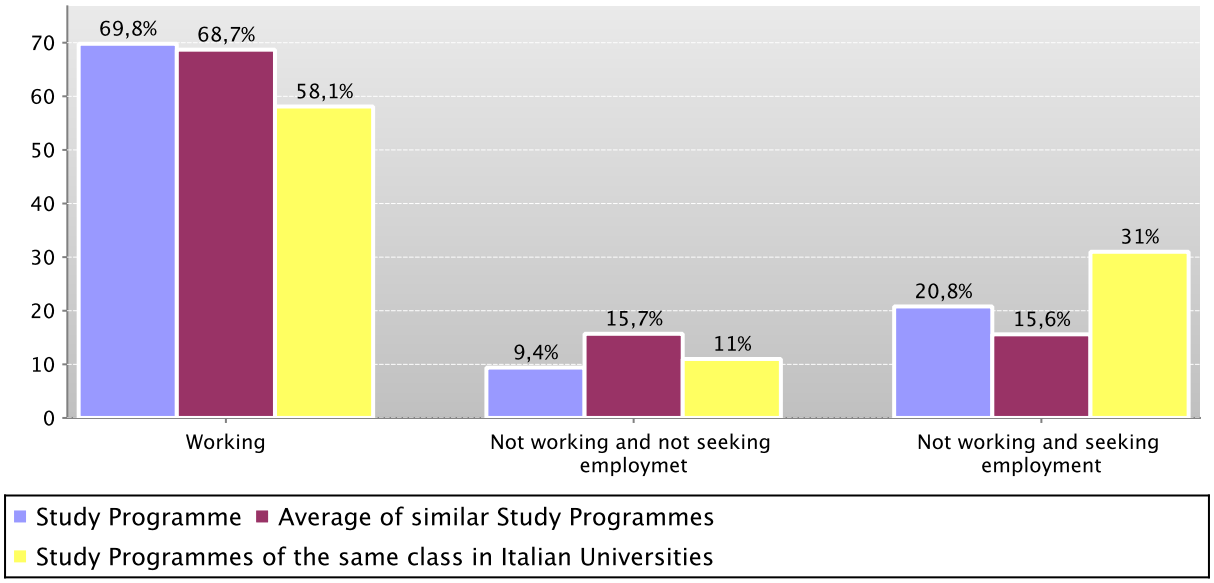
Employment situation of graduates of the Study Programme.
Tables and graphs provide information on the employment situation of graduates one year after graduating.

D.5.4.1. EMPLOYMENT SITUATION

The paragraph shows the employment situation of graduates one year after graduating.
The data is taken from the AlmaLaurea reports on the employment situation of graduates.
The **graph** shows who is working, who is not working and is not seeking employment, who is not working but is seeking employment.
In addition, the **table** shows the number of graduates interviewed, the number involved in internships and traineeships and the appropriateness of their degree to the job.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group) and the average of Study Programmes of the same class of other Italian universities for the graduates of the indicated years.

Employment situation of graduates in 2010 one year after graduating

Data of the Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450)



Data of the Study Programme D.M. 509/99 Environmental and Territory Engineering (code 0450)

		N. graduates interviewed	Employment situation (1)			Not working, not seeking employment, but following a university programme/traineeship (2)	Degree's appropriateness for the job (referred to the graduates who just work) (3)	
			Working	Not working and not seeking employmet	Not working and seeking employment		Effective / very effective	Quite effective
Graduation Year 2009	Study Programme	31	67,7%	12,9%	19,4%	6,5%	57,9%	31,6%
	Average of similar Study Programmes	32,1	63,8%	18,3%	17,9%	11,8%	55,3%	34,7%
	Study Programmes of the same class in Italian Universities	583	61,7%	11,8%	26,4%	7,7%	52,1%	34,6%
Graduation Year 2010	Study Programme	53	69,8%	9,4%	20,8%	5,7%	59,5%	37,8%
	Average of similar Study Programmes	23,5	68,7%	15,7%	15,6%	9,9%	57,4%	32,5%
	Study Programmes of the same class in Italian Universities	639	58,1%	11,0%	31,0%	5,9%	55,4%	33,6%

Symbols:

(*) The opinions of the Study Programmes with less than 5 graduates are not shown.

Notes on the AlmaLaurea report on the employment situation of graduates

(1) "Employment situation": the definition includes the number of employed graduates who declaring to carry out a paid work activity, provided that is not training activity (internship, traineeship, PhD degrees, specialization schools).

(2) "Number of those who do not work, who are not seeking employment but who are following a university programme/traineeship**":** the definition includes those who are enrolled in traineeships, PhD degrees, specialisation schools, Italian "master universitari" (first and second level). The presentation of this data complies with article 2 of D.M. 544 of 31st October 2007, as later provided for in Management Decree no. 61 of 10th June 2008 (transparency requirements).

(3) The evaluation of the appropriateness of the degree is obtained by a combination of the requirement of the relative qualification for the job held and the level of usage of the skills learned at university.

Further information on Graduates' Employment report.

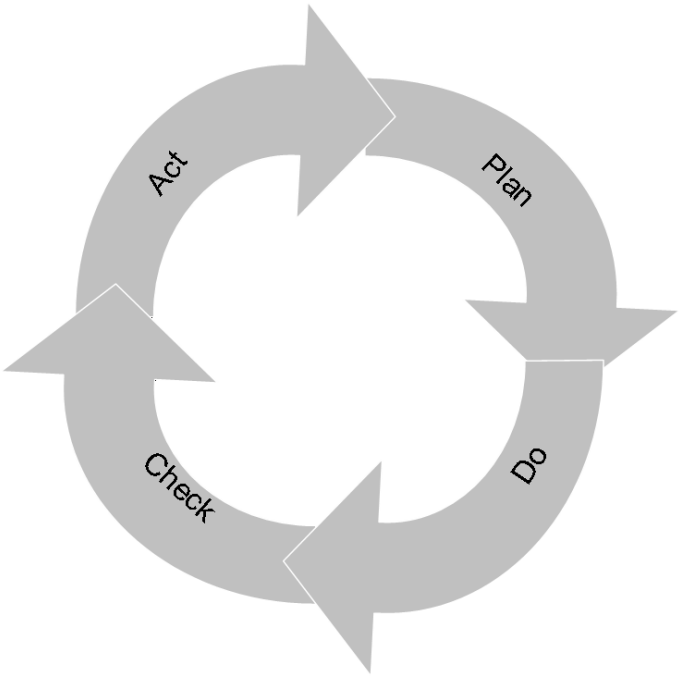
Go back to D.4.1. Employment situation

E. FIND OUT MORE: THE QUALITY OF YOUR STUDY PROGRAMME

The University of Bologna has identified its objectives as the *personal, cultural and professional growth of students and the improvement of the quality of learning, also in relation to the needs of society* (Strategic Plan 2010-2013).
Students, employers and society as a whole, have the right to effective learning for individual and intellectual growth, to develop critical sense and to prepare for the world of work.
In the Statute and the Strategic Plan 2010-2013 the University of Bologna acknowledges its responsibility in guaranteeing the quality of its study programmes, and for this purpose adopts an "internal quality assurance system".

The Internal Quality Assurance system
The internal quality assurance system is a set of processes and responsibilities adopted to guarantee the quality of Study Programmes at the University of Bologna.
The guarantee of the quality of a Study Programme is the correspondence of the results achieved with the set objectives, in the following phases:

- Plan: defining the objectives
- Do: implementing the planned actions
- Check: checking that the objectives have been achieved
- Act: planning improvement action



This path responds to the expectations of students, guides teaching behaviour and provides indicators for the assessment of results. Self-assessment is based on the analysis of significant data (for example, the number of students graduating in line with the exam schedule, students' opinions and the employment rates of graduates) and highlights strengths and weaknesses in order to reflect on the achieved results, critically consider one's own working methods and take steps for the continual improvement of the Programme.
This path involves all educational stakeholders, including students, in order to make use of the contributions of everyone with first-hand knowledge of the Study Programme. Improvement is therefore a day to day development, concerning all aspects of teaching: from the lesson timetable to the publication of on-line programmes, from classroom management to exam methods, and the actual design of the Programme.

This is what happens in each phase:

- **Planning**: the Study Programme is the result of a proposal from the teaching structures and approved by the Academic Bodies.
- **Management**: Schools, Departments and Study Programmes manage the activities required to ensure teaching. The activities are organised as follows**:**

What we do	Who does what				
	Professors	**Study Programme**	**Schools**	**Departments**	**General Administration**
Teaching calendar, lessons programme and exam schedules			x		
Management of financial resources			x	x	
Classroom teaching	x				
Management of classrooms and laboratories			x	x	
Libraries and study rooms			x	x	
Approval of individual study plans		x			
Communication and information		x	x		Academic Affairs Division
Guidance service		x	x		Academic Affairs Division
Internships		x	x		Academic Affairs Division
Administrative services: Student Administration Office					Academic Affairs Division
Administration services: Degree programme office			x		Academic Affairs Division
Study grants and loans ad honorem					Academic Affairs Division
Student mobility: university subsidies and programmes					International Relations Division
Mobility: study grants for dissertations abroad			x		
Mobility: authorisations and recognitions		x			
Other students support services		x	x		x

- **Internal assessment:** every Study Programme periodically assesses its own results, evaluating, for example, the number of enrolled students, the number of withdrawing students, student opinions etc.; in this way, the strengths and weaknesses, as well as any implemented improvement actions, are highlighted. This phase is organised as follows:

What we do	Who does what
Definition, gathering and publication of evaluation data According to the general guidelines of the University and national and international standards, are defined the tools through which should be evaluated the results (indicators). The survey data to be evaluate are published every year on the Report of the Study Program.	Academic Bodies
Self-Assessment The Schools and Study Programmes assess the effectiveness of the previously adopted solutions, analyse the progress of their learning activities and draw up proposals for improvement.	Schools and Study Programmes
Internal audit The results of the self-assessment process are reviewed in the following phases: • Analysis: the University Quality Manager analyses the review documents, considering the ability to identify problems, propose solutions and the overall development of the internal quality assurance system. • Review: The observations on the results obtained and the good practices adopted are examined together with the persons in charge of the Schools and Study Programmes in meetings organised by scientific-disciplinary field. The persons in charge receive the observations and inputs on the areas for development and the actions to be adopted in future to improve results. • Sharing: the conclusions of the review activities are submitted to the Academic Bodies and the University Evaluation Board.	Quality Manager Vice Rector for Teaching and Education Academic Bodies

- **Improvement**: on the basis of the results of the internal audit, the Schools and Study Programmes plan improvement activities, to ensure that the Study Programmes increasingly respond to the needs of society. The cycle then starts over again, with the definition of actions to be implemented, the results of which are in turn verified, in a continuous path that guarantees the quality of education.

F. GLOSSARY TERMS

Additional Learning Requirements

Students enrolling in the first year of a first cycle or single cycle degree and who, following the results of the entrance exams established for each study programme, do not possess the knowledge required for access to the programme, are assigned additional learning requirements (OFA).
The OFA are fulfilled by passing an assessment test defined by the programme.
The non-fulfilment of the requirements by the date set by the Academic Bodies and published on the University Portal will lead to the re-enrolment in the first year of the programme.

AlmaLaurea

AlmaLaurea is an innovative in-line database service of graduates' curriculum vitae (1,620,000 CVs, from 53 Italian universities as of 05/07/2012), which offers a link between graduates, universities and businesses.
Created in 1994 on the initiative of the Statistical Observatory of the University of Bologna, managed by a consortium of Italian universities with the support of the Ministry of Education, University and Research, the purpose AlmaLaurea is to act as a point of contact between businesses and graduates, a reference within universities for anyone (students, businesses, etc...) working in the field of university studies, employment and the condition of young people at different levels.

Average of similar study programmes (belonging to the same group)

Average of the Study Programmes (which belong to the subject group)
Calculated average which refers to all study programmes of the same cycle which belong to the subject group.
There are four groups, composed as follows:

- BIOMEDICAL group: Study Programmes of the Schools of Pharmacy, Biotechnology and Sport Science; Medicine; Agriculture and Veterinary Medicine
- SCIENTIFIC-TECHNOLOGICAL group: Study Programmes of the Schools of Engineering and Architecture; Sciences
- SOCIAL SCIENCES group: Study Programmes of the Schools of Economics, Management, and Statistics; Law, Political Sciences
- HUMANITIES group: Study Programmes of the Schools of Arts, Humanities, and Cultural Heritage; Foreign Languages and Literatures, Interpreting and Translation; Psychology and Education

CFU University Learning Credits

University Learning Credits (CFU) were introduced under Italian Ministerial Decree no. 509/99 to comply with European legislation, and are a measurement of the volume of learning, including individual study, required of students; generally 1 CFU corresponds to 25 hours of a student's "overall learning effort".

Class

Degree classes group together study programmes of the same level and with the same key learning outcomes and available learning activities for a given number of credits and in sectors which are identified as indispensable. The features of the classes are set nationally, by Ministerial Decree, and are therefore common to all universities.

Cohort

Cohort refers to a group of students enrolled in the same academic year.

Enrolment status

In terms of enrolment, students may be:

- **Regularly enrolled**: students enrolled for as many or fewer years than the legal duration of the study programme, who do not fall into any of the following categories;
- **Not aligned with the exam schedule**: students who, without having graduated, have enrolled in all the years of the study programme and which, for programmes with compulsory attendance, have obtained all attendance certificates;
- **Repeating**: students re-enrolling in the same year of a programme again. Starting from academic year 2009-2010, students who have not fulfilled the assigned additional learning requirements within the deadline have to enrol in the 1st year as repeating students.

Entrance exam

Enrolment in a study programme may be free access or restricted access.

For all programmes with restricted access, candidates are required to sit an entrance exam and there are a limited number of places available. The entrance exam is a test which is used to draw up a graded list of candidates; students may enrol in the programme according to their place in the list. The methods of managing the call for applications and the list of candidates, including the methods for filling any unclaimed places, may vary from year to year. The test may be specific to a Degree Programme or may be part of a single exam covering several programmes from the same university or from other universities (during the registration the students should indicate their first choice).
The following definitions apply:
Available places = the number of places laid down in the call for applications to the Study Programme, or determined by subsequent legal provisions; these exclude any additional places reserved according to special provisions of the programme (e.g. for international study programmes, they do not include places for foreign students selected from other universities; for all programmes with restricted access regulated nationally, these do not include the places reserved for transferring students).
Number of candidates for the exam = number of students registered for the exam indicating the study programme as their first choice;
Number of participants in the exam = number of students participating in the exam indicating the study programme as their first choice;
Number of participants in the exam for every available place = number of students participating in the exam who indicated the study programme as their first choice as a ratio of the number of places available on the programme.

First year enrolments

This includes all students enrolled in the first year, including those joining the study programme in its first year through transferrals, as well as those enrolled in the first year but not for the first time (e.g. repeating students).

New Careers

Students who start a new university career (excluding transfers) from year one in a second cycle programme.

Passages and transfers

Passage: when a student applies to move to a different study programme from the one enrolled in the previous year, within the same university.
Transfer: when a student transfers from a study programme in one university to any programme in another university.

Registered students

Students who begin a career in the Italian University System for the first time and who enrol in the first year (i.e. for whom no previous university careers are recorded) of a First Cycle (L509, L) or Single Cycle programme (LSCU, LMCU)

Statistical Observatory of the University of Bologna

The Statistical Observatory was founded in 1997 in order to "provide the university governing bodies with a reliable and timely documentary and monitoring database aiming to promote decision-making processes and planning, particularly of learning activities and other services targeting the student population" (art.1 of the Founding and Operational Regulation). Following the disabling of the Statistical Observatory, as resolved by the Board of Governors on 14 December 2010, from the second semester of academic year 2010-11 the survey and subsequently analysis of the attending students opinion is cared for the University of Bologna by Academic Affairs Division - Quality Assurance Department and Control and Finance Division - Support Planning and Evaluation Department. The overall results and the methods of collection and analysis are described in the document published online on the Statistical Observatory of the University of Bologna.

University DataWarehouse

In information service for the managers of the University of Bologna organisational departments which gathers, integrates and reorganises data from various sources and makes it available for analysis and evaluation for the purposes of planning and decision-making.

Withdrawal

Suspension of studies by students who do not register in the next academic year, or who drop out from the degree programme.