2016

REPORT

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

School of Engineering and Architecture – Forli Campus

Laurea Magistrale (Second cycle degree/Two year Master - 120 ECTS) in Aerospace Engineering

a.y. 2016/2017

Programme Director Prof. Paolo Tortora

Study Programme Report
Aerospace Engineering
Programme ex D.M. 270/04 - Code 8769 - Class LM-20
School of Engineering and Architecture – Forli Campus
Programme Director Prof. Paolo Tortora

Created in collaboration with *Academic Affairs Division (AFORM), Quality Assurance*

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www.unibo.it/QualityAssuranceEn

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 services 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 2016/2017: the information and data provided is as updated as possible.
- Sections A, B and C provide data for the academic year 2016/2017.
- The section D presents data regarding the Study Programmes in the last three academic years. 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. When Study Programme data are not available for three academic years, for some information the data of the previous Study Programme are available, too (as for example, the number and the opinion of the graduates, the employment situation). Graphs and tables about attending students opinions and exchange students mobility refers to students whether they are enrolled/graduated in the current programme or in the Study programme running under previous reform regulations (D.M. 509).
- The information and data were taken from the University databases and the reports published by AlmaLaurea, and are updated to **6 May 2015.**

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 2016/2017.

A.1. PRESENTATION

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

The 2nd cycle degree programme produces professionals with a high level of preparation and specialization, able to fill technical and management positions in working contexts which require specific skills in basic science and industrial engineering, with a specific focus in aerospace engineering.
Graduates must be able to apply analytical tools, numerical simulation techniques and experimental laboratory methods. Professionally, graduates will be able to produce physical/mathematical models to analyse aircraft and spacecraft requirements and performance and the physical environment they move in. They may also study advanced methods for air traffic monitoring and control using information processing and telecommunication systems in aerospace environments.

These learning outcomes are achieved through a learning programme which, based on a solid background in physics and mathematics is completed in this 2nd cycle degree programme by some specific course units, the acquisition of professional and operative skills in all specific disciplines of Aerospace Engineering, and in particular aerodynamics, flight mechanics, aerospace structures and materials, propulsion and aerospace systems. The course curriculum, including the preparation of the dissertation, leaves space for autonomous learning activities, including workshops, allowing students to develop strong skills in the planning, design, manufacturing and assembly of highly complex systems.

2nd cycle graduates will be able to operate professionally in production innovation and development, advanced design, planning and programming, management of complex systems, both as freelance or employed in manufacturing and service industries and in civil service. 2nd cycle graduates may find employment in aircraft and aerospace industries; public and private aerospace research and development institutions; air transport companies; air traffic control authorities; the air force and aeronautical sectors of other corps; manufacturing industries which require skills in aerodynamics and light structures.

A.2. LEARNING OUTCOMES

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

This information is not available in English at this time.

A.3. CAREER OPPORTUNITIES

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

Professional Figure:

Aerospace and Astronautical Engineering
The specific engineering and technical background offers graduates in Aerospace Engineering access to a wide range of occupations, also working in fields normally covered by mechanical, industrial and management engineers, including:

FLUID-DYNAMIC ENGINEER
Working also with highly complex systems, both in strictly aerospace fields and more general industrial fields, analysing fluid-dynamic fields associated with different systems, in charge of aerodynamic design. Drafts simplified physical and mathematical models to estimate aerodynamic loads. Uses numerical models to analyse motion in various aerospace and industrial applications, calculating the aerodynamic load on various elements. Uses even sophisticated calculation software with different turbulence models for non-linear analyses in different situations. Carries out experimental tests in wind tunnels or specific experimental plants and critically interprets the data.

PRODUCTION ENGINEER
Design and management of quality and production systems in manufacturing industries which apply advanced technologies in the field of materials, aerodynamics and light structures.
Guarantees the design, production, testing and management of the principal conventional and non-conventional systems, managing logistics and the optimisation of production and processes generally. Analyses and manages complex manufacturing systems, competently selecting the materials and heat treatments, assessing costs and introducing appropriate innovation in processes, equipment and aeronautical and industrial production systems generally. Plans and monitors the reliability and quality of production, and at the same time, assures innovation and positioning in the most advanced product markets.

DESIGNER-ENGINEER

Occupies positions of responsibility in design, management, coordination and development of industrial and/or research activities in public and private bodies and aerospace companies, as well as innovative activities within the freelance field. Produces design specifications, plans development and design activitiesfor all parts and components. Designs new technical solutions starting from the definition of specifications through to prototyping and production. Draws up physical and mathematical models to interpret the behaviour of the designed components and systems, focusing on functional improvement. Uses even sophisticated calculation software and carries out experimental tests to check the functional features of products. Produces the technical documentation required for internal production and installation at customer premises.

PLANT ENGINEER

Holds positions of responsibility in the design of individual subsystems and plantson board aeronautical and space vehicles to ensure the operational life of the system (vehicle steering and control, power output and distribution, avionics and on-board information transmission and processing electronic systems, heatcontrol and air-conditioning systems, etc.) as well as ground systems formission control and experimentation. Defines the functional architecture for single units, identifies the functional terms of components and the influence of the external environment and dynamic interactions on systems and subsystems, using specific survey methods, including simulation for experimental,analytical and numerical modelling.

SYSTEMS ENGINEER

Holds positions of responsibility in the study of aeronautical and space systems as a whole and the interaction and integration of subsystems within the configuration, in order to achieve the objectives of the mission. Also deals with the ground and flight experimentation of aeronautical and space systems,on-board, steering, navigation instrumentation and system control. Designs and develops methodologies, subsystems and instrumentation for special applications including remote surveying.

MISSION ENGINEER

Draws up physical and mathematical models for performance analysis. Studies the influence of aircraft centring on stability and controllability features and of configuration on take-off and landing performance. Designs subsystems and ground instrumentation to measure trajectories and orbits and for data acquisition and transmission. Uses calculation software to optimise trajectories to reduce atmospheric and noise pollution. Critically analyses the data from previous missions. Provides consulting for accidents. Studies international air traffic control laws.

MATERIALS ENGINEER

Working also with advanced systems, both in strictly aerospace fields and more general industrial fields, this professional figure possesses widespread knowledge in the preparation, processing and applications of materials, using the competences acquired both on structural materials (metals and polymers) and functional materials (such as advanced materials for the micro-mechanical and electronic industries). In each material class, the specific competences are based on the understanding of the relations between the material micro-structure and their properties (mechanical, thermal, electrical, etc.), competences underlying the basic common training of industrial engineers. Materials engineers also have the tools required for material characterisation, processing and functionalisation and is able to choose materials and production processes to suit a given component, considering the influence of transformation and subsequent processing on the structure and properties of thematerial.

MANAGEMENT AND MAINTENANCE ENGINEER

Based on in-depth theoretical and scientific knowledge of even highly complex systems inboth specific aerospace and more general industrial fields, they hold organisational and managerial roles requiring basic technological competences, particularly in the analysis and management of production and logistical processes and company management processes. They are also able to critically analyse and solve problems affecting the management and control of airline fleets, aircraft maintenance, also concerning the modification and certification of systems and plants, the management of operational, administrative and technical-commercial processes.

Main professional competences:

• Ability to work in research, design and development areas, investigating the new frontiers of technology, not only using advanced components and methodologies but also developing new ones for innovative applications or improved cost-performance ratios.
• Ability to work with knowledge from different fields of aerospace engineering: Flight Mechanics, Structures and Materials, Plants and Systems, Fluid-dynamics and Propulsion.
• Ability to manage complex projects pushing performance to the limits of technological feasibility, developing new components and subsystems and using innovative methods and procedures.

Career Opportunities:

• Aerospace, Naval, Mechanical, Processing and Car Manufacturing industries;
• Windenergy production systems;
• Industries producing machinery and systems with relevance to fluid-dynamics, advanced materials and light structures, plants and plant interaction;
• Airlines;
• Air traffic control authorities;
• Space agencies;
• Airline maintenance companies.

A.4. 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.5. FURTHER STUDIES

It gives access to third cycle studies (Dottorato di ricerca/Scuole di specializzazione) and master universitario di secondo livello.

B. TEACHING AND LEARNING

This section describes the updated course structure diagram (for academic year 2016/2017), 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).

- Course timetable
- Examination 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 2016/2017.

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 13 June 2016.

Permanent teaching staff:

Bagassi, Sara
Bonfiglioli, Andrea
Castaldi, Paolo
Francaviglia, Stefano
Gherardi, Matteo
Giulietti, Fabrizio
Modenini, Dario
Paolini, Enrico
Piancastelli, Luca
Ponti, Fabrizio
Talamelli, Alessandro
Tortora, Paolo
Troiani, Enrico
Zama, Fabiana

Contract teaching staff:

Alderliesten, Reyndert Christiaan
Alfredsson, Per-Henrik
Avanzi, Alessandro
Bellani, Gabriele
Cimarelli, Andrea
Rans, Calvin David
Recker, Elmar Gustav T
Zannoni, Marco

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).

- Prospective 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).

- Current 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.

- Exchange 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 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 6 May 2016, 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.
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. When Study Programme data are not available for three academic years, for some information the data of the previous Study Programme are available, too (as for example, the number and the opinion of the graduates, the employment situation). Graphs and tables about attending students opinions and exchange students mobility refers to students whether they are enrolled/graduated in the current programme or in the Study programme running under previous reform regulations (D.M. 509).
From the publication of this study programme report is updated the procedure of the selection of the cohorts: the student belongs to the cohort of the study programme on which one has been enrolled on 31 December of the year of the beginning of student career.

D.1. STUDENTS STARTING THEIR UNIVERSITY CAREERS

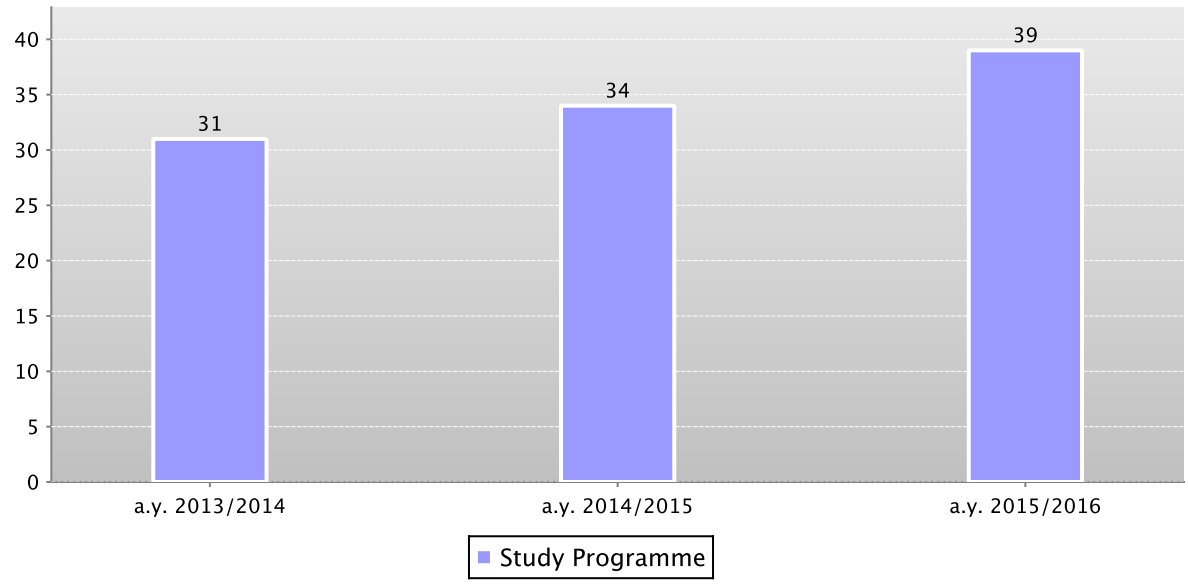
Characteristics of the incoming students at the beginning of their study. The tables and the graphs provide information on the characteristics of the students and on the results of any entrance tests.

D.1.1. ENROLLED

The **graph** shows the number of students enrolled in the 1st year.
In addition, the **table** shows for each academic year the number of the students of the cohort and the enrolled students for each year of the programme.

First year enrolments

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)



Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769)

	Students of the cohort	Students enrolled		
		Students enrolled at the first year	Students enrolled at the second year	Students enrolled on supplementary year
a.y. 2013/2014	31	31	17	29
a.y. 2014/2015	33	34	29	19
a.y. 2015/2016	38	39	28	34

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

D.1.2.1. REGISTERED FOR THE ENTRANCE EXAMINATIONS OF THE STUDY PROGRAMMES WITH RESTRICTED ACCESS

For all study programme with restricted access is expected a maximum number of available places and selection procedure suitable to develop classification of the students which could enroll to the study programme. The procedure for management of the call for application and the classification, unclaimed places included, may vary from year to year. The selection may be specific to a study programme or could be part of an examination covering several programmes from the same university or from other universities.
The following definitions apply:

- **Available places** = the number of places estimated by the call for applications of the Study Programme or defined by subsequent legal provisions; except any additional places reserved according to specific characteristics of the programme (e.g. for some international study programmes, are not included places for foreign students selected from other universities).
- **Number of participants in the exam** = number of actual participations (when the test are organized in several exam sessions, the data refers to the total of the participants for each session).

When an examination is covering several programmes, the table shows the number of participations indicating the study programme as their first choice.
For the health's study programmes are shown the candidates registered at the test indicating the study programme if is indicated as first, second or third choice. For single cycle degree programmes of the School of Medicine is indicated the total number of enrolled on the joint selection.

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)

	N. of places available	N. of participants
a.y. 2013/2014	50	47
a.y. 2014/2015	50	57
a.y. 2015/2016	50	60

D.1.2.2. INCOMING STUDENTS

Data shows a group of students (cohort) which started on the same academic year their students career. Students which have been transferred or which requested to passed to another Study Programme are not included.
From the publication of this study programme report is updated the procedure of the selection of the cohorts: the student belongs to the cohort of the study programme on which one has been enrolled on 31 December of the year of the beginning of student's career.
The **tables** show the number, geographic origin, citizenship, gender, age, type of diploma and grade of high school of the students of the cohort.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group). To remind that for the same grouping could include Study Programmes with a different entrance access and some of them could have restricted access.

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)

			Geographic origin							Gender		Average age of new career students		
		Students of the cohort	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 (Republic of San Marino included)	Students coming from abroad	Not available	Students with foreign citizenship (different of Italian and Republic of San Marino)	M	F	22 or less	23 - 24	25 or more
Cohort 2013/2014	Study Programme	31	16,1%	35,5%	3,2%	38,7%	6,5%		6,5%	93,5%	6,5%	29,0%	48,4%	22,6%
	Average of similar Study Programmes	52,6	24,1%	16,9%	8,5%	45,0%	5,4%	0,1%	8,8%	67,1%	32,9%	32,6%	46,5%	20,9%
Cohort 2014/2015	Study Programme	33	12,1%	30,3%	9,1%	27,3%	21,2%		27,3%	87,9%	12,1%	36,4%	42,4%	21,2%
	Average of similar Study Programmes	57,1	24,5%	15,0%	9,8%	42,9%	7,7%		11,7%	69,1%	30,9%	32,4%	44,8%	22,8%
Cohort 2015/2016	Study Programme	38	10,5%	7,9%	7,9%	57,9%	15,8%		28,9%	81,6%	18,4%	18,4%	50,0%	31,6%
	Average of similar Study Programmes	60,5	22,8%	15,0%	9,3%	47,0%	5,9%	0,1%	10,8%	66,9%	33,1%	29,4%	47,2%	23,4%

		First Cycle Degree: grade						First Cycle Degree: University of previous studies				First Cycle Degree: more frequent class	
		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	University of Bologna	Other Italian Universities (Republic of San Marino included)	Foreign University	Other not defined	Class code and name	% of students
Cohort 2013/2014	Study Programme	19,4%	38,7%	9,7%	12,9%	6,5%	12,9%	77,4%	9,7%	3,2%	9,7%	L-9 INGEGNERIA INDUSTRIALE	67,7%
	Average of similar Study Programmes	17,2%	35,7%	16,7%	13,3%	9,2%	7,8%	64,5%	27,4%	0,3%	7,8%	L-9 INGEGNERIA INDUSTRIALE	23,5%
Cohort 2014/2015	Study Programme	9,1%	36,4%	15,2%	9,1%		30,3%	66,7%	3,0%		30,3%	L-9 INGEGNERIA INDUSTRIALE	63,6%
	Average of similar Study Programmes	17,4%	35,6%	16,2%	11,6%	8,2%	11,0%	64,6%	24,3%	0,1%	11,0%	L-9 INGEGNERIA INDUSTRIALE	28,2%
Cohort 2015/2016	Study Programme	21,1%	26,3%	21,1%		2,6%	28,9%	57,9%	10,5%		31,6%	L-9 INGEGNERIA INDUSTRIALE	63,2%
	Average of similar Study Programmes	20,9%	38,3%	16,6%	12,6%	9,2%	2,5%	62,8%	28,0%	0,5%	8,7%	L-9 INGEGNERIA INDUSTRIALE	28,8%

D.2. REGULARITY OF STUDIES

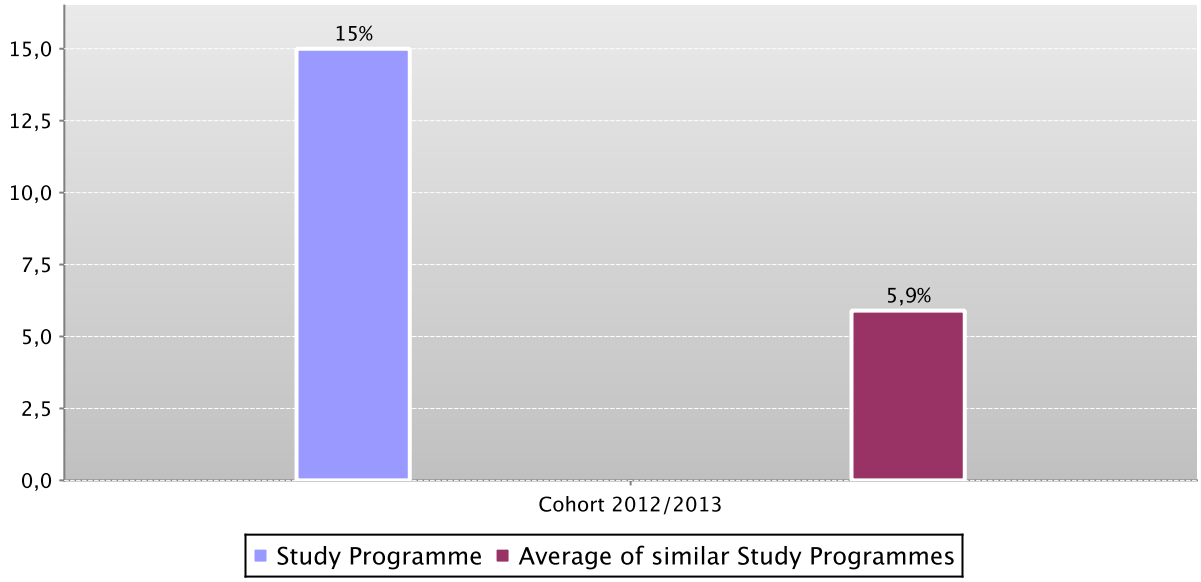
The graph and the table provide information on the number of students who withdraw the programme between the first and second year and the number of regular graduates, focusing on the number of credits obtained at the end of the first year, on the passed exams, average grade achieved for each course unit and exchange students' data.

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

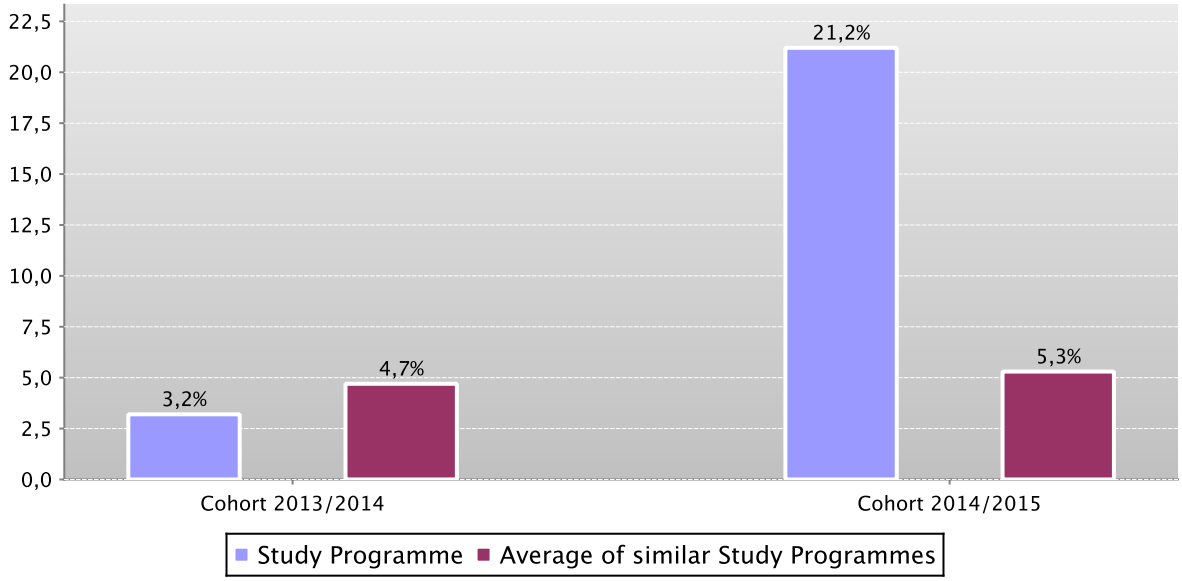
Data shows a group of students (cohort) which started on the same academic year their students career. Students which have been transferred or which requested to pass to another Study Programme are not included.
From the publication of this study programme report is updated the procedure of the selection of the cohorts: the student belongs to the cohort of the study programme on which one has been enrolled on 31 December of the year of the beginning of student career.
The **graph** shows the percentage of students who withdrawal the studies after the first year compared to the average of similar Study Programmes (belonging to the same group).
The **table** shows the numerosity of the cohort, the percentage of students leaving the programme due to withdrawal from studies, passages to a different Study Programme in the same university or transfers to another university, the percentage of the students enrolled as 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).

Percentage of withdrawal from studies between 1st and 2nd year

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)



Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)



Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)

		Students of the cohort	% withdrawal from studies	% passages and transfers	% repeating students	Students of the cohort in the 2nd year
Cohort 2012/2013	Study Programme	20	15,0%	0,0%	0,0%	17
	Average of similar Study Programmes	47,2	5,9%	0,7%	0,1%	44,1

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)

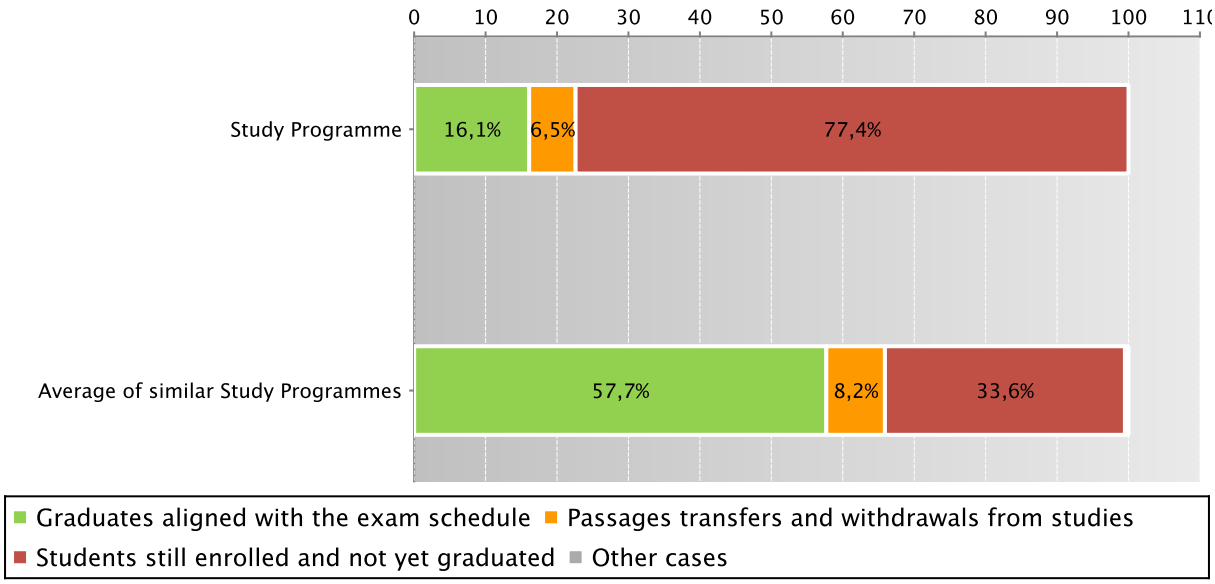
		Students of the cohort	% withdrawal from studies	% passages and transfers	% repeating students	Students of the cohort in the 2nd year
Cohort 2013/2014	Study Programme	31	3,2%	3,2%	0,0%	29
	Average of similar Study Programmes	52,6	4,7%	0,4%	0,1%	49,8
Cohort 2014/2015	Study Programme	33	21,2%	0,0%	0,0%	26
	Average of similar Study Programmes	57,1	5,3%	0,2%	0,1%	53,9

D.2.2. REGULAR GRADUATES

Data shows a group of students (cohort) which started on the same academic year their university career. Students which have been transferred or which requested to pass to another Study Programme are not included.
From the publication of this study programme report is updated the procedure of the selection of the cohorts: the student belongs to the cohort of the study programme on which one has been enrolled on 31 December of the year of the beginning of student career.
The **graph** and the **table** show the situation of the indicated cohorts, at the end of the standard length of study, 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 from studies).
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group).

Situation of the students of the cohort 2013/2014 at the end of the regular duration of the studies

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)



Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)

		Students of the cohort	Regular graduates		Passages, transfers and withdrawals from studies		Students still enrolled and not yet graduated	
			N.	%	N.	%	N.	%
Cohort 2011/2012	Study Programme	33	8	24,2%	2	6,1%	23	69,7%
	Average of similar Study Programmes	42,7	22,8	53,3%	4,5	10,5%	15,4	36,1%
Cohort 2012/2013	Study Programme	20	6	30,0%	4	20,0%	10	50,0%
	Average of similar Study Programmes	47,2	26,8	56,7%	4,2	9,0%	16	33,8%

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)

		Students of the cohort	Regular graduates		Passages, transfers and withdrawals from studies		Students still enrolled and not yet graduated	
			N.	%	N.	%	N.	%
Cohort 2013/2014	Study Programme	31	5	16,1%	2	6,5%	24	77,4%
	Average of similar Study Programmes	52,6	30,3	57,7%	4,3	8,2%	17,7	33,6%

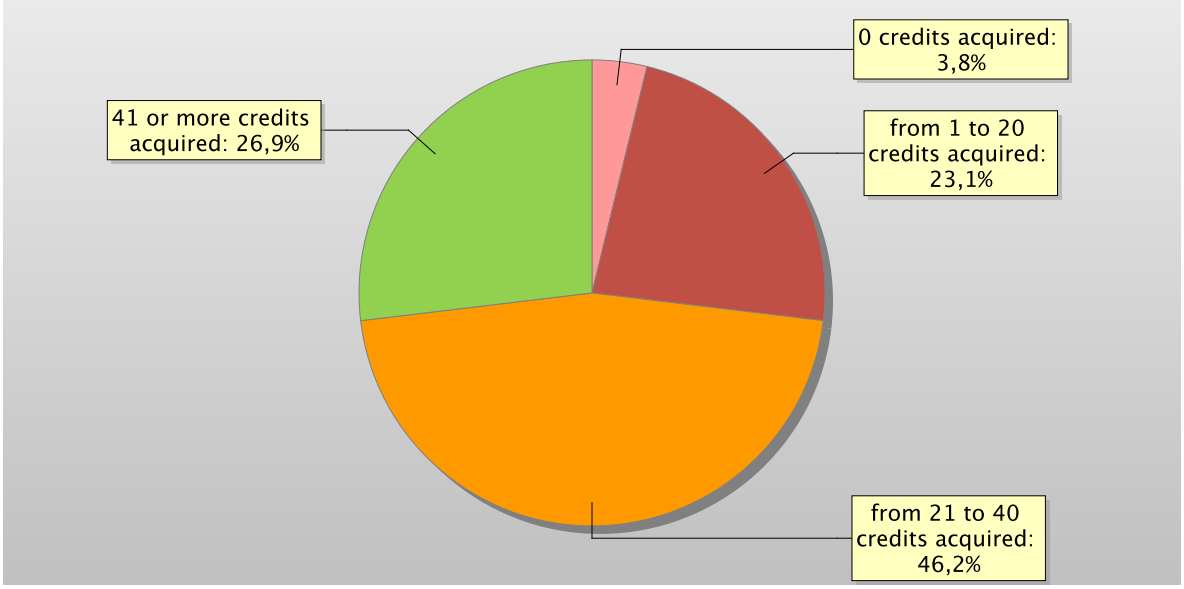
D.2.3. ADDITIONAL DATA ON REGULARITY OF STUDIES

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 of the cohort who passed at the second year, in the same Study Programme, according to the number of credits obtained at 31 October of the year after the enrollment.
In addition, the **table** shows the number of the cohort of students enrolled at the second year in the same Study Programme and the average credits obtained from the students during the first year.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated academic years.

Distribution of the students of the cohort 2014/2015 (at 2nd year) based on the number of credits obtained during the 1st year *

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)



Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)

		Students of the cohort enrolled at 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	
Cohort 2012/2013	Study Programme	17		41,2%	47,1%	11,8%	24,2
	Average of similar Study Programmes	44,1	2,7%	12,0%	44,8%	40,5%	36

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)

		Students of the cohort enrolled at 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	
Cohort 2013/2014	Study Programme	29	3,4%	24,1%	58,6%	13,8%	27,8
	Average of similar Study Programmes	49,8	2,4%	11,6%	39,2%	46,9%	37,7
Cohort 2014/2015	Study Programme	26	3,8%	23,1%	46,2%	26,9%	29,1
	Average of similar Study Programmes	53,9	1,9%	12,8%	41,7%	43,6%	36,7

*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, in an alphabetical order of the course units, number of exams passed and average grade achieved for each course unit in the calendar year 2015. 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.
Course units whith pass/fail score are excluded.

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769)

	N. of exams passed	Average grade *
35310 AERODINAMICA APPLICATA LM	9	24,2
35319 AEROMOBILI A DECOLLO VERTICALE LM	1	
73348 AEROSPACE PROPULSION SYSTEMS	24	27,8
73184 AEROSPACE STRUCTURES (C.I.)	13	27,6
73186 AEROSPACE STRUCTURES A	3	
73205 AEROSPACE TECHNOLOGIES AND MATERIALS	23	27,4
34794 ANALISI NUMERICA LM	5	
73155 APPLIED AERODYNAMICS (C.I.)	24	25,3
73172 ATMOSPHERIC FLIGHT DYNAMICS (C.I.)	21	23,1
73177 ATMOSPHERIC FLIGHT DYNAMICS B	1	
73192 AUTOMATIC FLIGHT CONTROL	6	27
35312 CONTROLLO AUTOMATICO DEL VOLO LM	6	28,3
73194 DESIGN METHODS IN THE AEROSPACE INDUSTRY	27	29,9
35322 DINAMICA E CONTROLLO D'ASSETTO LM	2	
35314 ELETTRONICA APPLICATA ALL'AEROSPAZIO LM	4	

	N. of exams passed	Average grade *
77957 EMBEDDED ELECTRONIC SYSTEMS FOR AEROSPACE APPLICATIONS	4	
73198 EXPERIMENTAL METHODS IN AERODYNAMICS	6	28
35317 FONDAMENTI E METODI DELLA PROGETTAZIONE PER L'INDUSTRIA AEROSPAZIALE LM	5	
35143 MATHEMATICAL METHODS FOR ENGINEERING	11	25
37261 NUMERICAL ANALYSIS	25	27,4
73204 RADIO COMMUNICATION AND RADAR SYSTEMS	21	28
73346 SIMULATION AND MODELLING IN FLUID DYNAMICS	8	26
35313 SISTEMI DI PROPULSIONE AVANZATI LM	1	
73208 SPACECRAFT ATTITUDE DYNAMICS AND CONTROL	5	
73202 SPACECRAFT ORBITAL DYNAMICS AND CONTROL	6	28,2
35316 STRUTTURE E MATERIALI AEROSPAZIALI LM	3	
37571 TOLLERANZA AL DANNO DI STRUTTURE AERONAUTICHE LM	4	

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

D.2.4. ADDITIONAL DATA ON INTERNATIONALIZATION

The table shows data about international students mobility: incoming and outgoing.
Data refers to Study programme students independently of enrollment as the current programme or in the Study programme running under previous reform regulations (D.M. 509).

D.2.4.1. EXAMS PASSED BY THE INCOMING EXCHANGE STUDENTS

The **table** shows the number of incoming exchange students who attended course units provided by the Study Programme and passed the exam. The table shows the total number of exams passed by these students during the academic year spent at the University of Bologna.
The data is provided by the AlmaRM application: system implemented by the University of Bologna in order to manage online student mobility programs.
It should be noted that incoming exchange students means exchange students from universities with which mobility agreements have been stipulated.
The table refers to exchange incoming students whether they attended course units provided by the current programme or to the Study programme running under previous reform regulations (D.M. 509).

- The row is not available in the table in case for one academic year the number of the incoming exchange students is equal to zero.
- The table is not available if the previous condition occurs for the three academic years 2012/13, 2013/14 and 2014/15.

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*Note: in case the study plan of the exchange student provides course units offered by more Study Programmes, the student is reported in the statistics of all the Study Programmes involved.

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769) and of the Study Programme D.M. 509/99 Aerospace Engineering (code 0229)

	Incoming exchange students *	Total exam passed by the incoming exchange students
a.y. 2012/2013	3	8
a.y. 2013/2014	2	2
a.y. 2014/2015	6	8

D.2.4.2. OUTGOING EXCHANGE STUDENTS

The **table** shows the number of outgoing students participating in a certain academic year in one of the following international mobility exchange programmes: Erasmus Study, Erasmus Placement, Erasmus Mundus Action 2, Overseas.
The data is not including students participating to different mobility and educational activities in the context of further opportunity of studying abroad offered by the Study Programme, the School, and the University of Bologna (for example scholarships for the development of the thesis abroad are not included).
The data is provided by the AlmaRM application: system implemented by the University of Bologna in order to manage online student mobility programs.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated academic years.
Table refers to students whether they are enrolled in the current programme or in the Study programme running under previous reform regulations (D.M. 509).

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769) and of the Study Programme D.M. 509/99 Aerospace Engineering (code 0229)

		Total N. enrolled students	Number of students taking part in the following exchange programmes				Total number of exchange students	% participants (Participants of exchange programmes / Total number enrolled students)
			Erasmus Study	Erasmus Placement	Erasmus Mundus Action 2	Overseas		
a.y. 2012/2013	Study Programme	85	5				5	5,9%
	Average of similar Study Programmes	108,5	3,5	0,4		0,4	4,2	3,9%
a.y. 2013/2014	Study Programme	79	7				7	8,9%
	Average of similar Study Programmes	114,3	3,2	0,8		0,3	4,3	3,8%
a.y. 2014/2015	Study Programme	83	3				3	3,6%
	Average of similar Study Programmes	122,2	3,7	0,8	0,1	0,6	5,1	4,2%

D.2.4.3. CREDITS OBTAINED ABROAD BY GRADUATES

The **table** shows the percentage of graduates in a certain calendar year with credits obtained abroad and traced in their students career. The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated calendar years.
Data refers to graduates independently if attended in the current programme or in the Study programme running under previous reform regulations.

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769) and of the Study Programme D.M. 509/99 Aerospace Engineering (code 0229)

		Total N. of graduates in the calendar year	Graduates with credits acquired abroad traced in their students career	% graduates with credits acquired abroad traced in their students career on the total
2013	Study Programme	29	1	3,4%
	Average of similar Study Programmes	34,2	3,2	9,5%
2014	Study Programme	30	5	16,7%
	Average of similar Study Programmes	39,3	3,5	8,9%
2015	Study Programme	19	5	26,3%
	Average of similar Study Programmes	40,6	2,9	7,1%

*"Total number of graduates", for each year, refers to graduates whether they graduated in the current programme or in the Study programme running under previous reform regulations.

D.3. OPINIONS OF GRADUATES AND ATTENDING STUDENTS

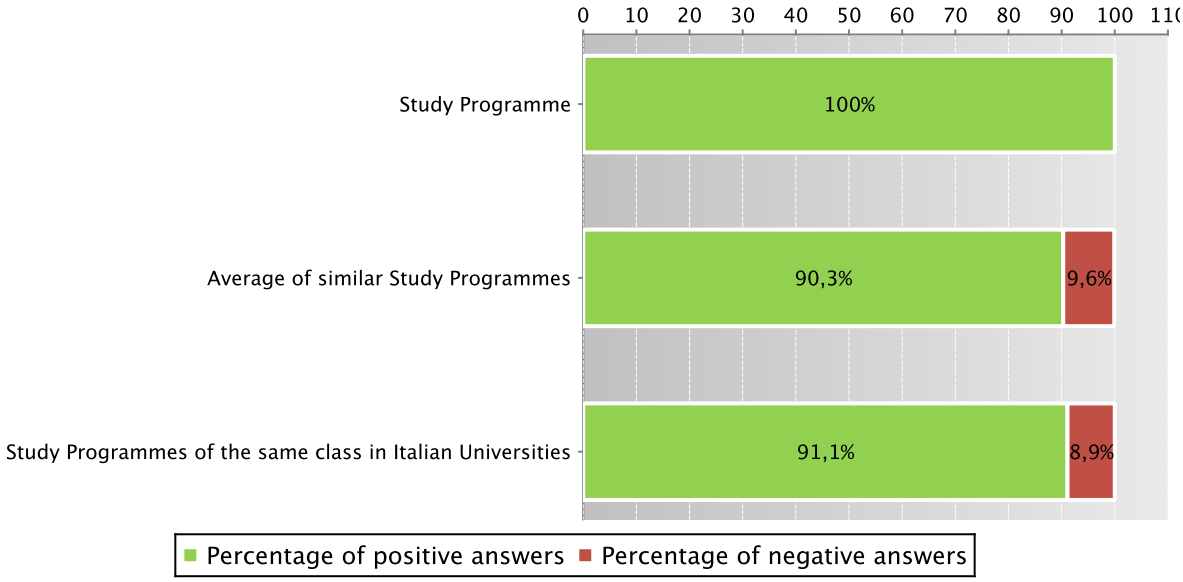
The tables and the graphs provide information on the number of graduates who expressed positive opinions on the Study Programme, and a focus on opinions expressed by attending students on the course units.

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 in the same university" to the question "Would you register again to the university?".
When the Study Programme data is not available for three academic years reformed ex DM 270/04, for the less recent years, for some information the data of the previous Study Programme are available, too.
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 2015 who responded positively to the question: "Are you generally satisfied with this Study Programme?"

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8769)



Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769)

		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"
2013	Study Programme	26	26	65,4%	69,2%
	Average of similar Study Programmes	34,1	33,2	85,9%	75,8%
	Study Programmes of the same class in Italian Universities	351	334	90,4%	76,3%
2014	Study Programme	28	28	89,3%	64,3%
	Average of similar Study Programmes	39,3	38,3	88,4%	76,1%
	Study Programmes of the same class in Italian Universities	394	354	90,1%	73,7%
2015	Study Programme	19	19	100,0%	84,2%
	Average of similar Study Programmes	40,6	39,7	90,3%	76,9%
	Study Programmes of the same class in Italian Universities	502	439	91,1%	74,9%

Note: The opinions of the Study Programmes with less than 5 graduates are not shown.

Further information on Graduates' Profile Report of AlmaLaurea.

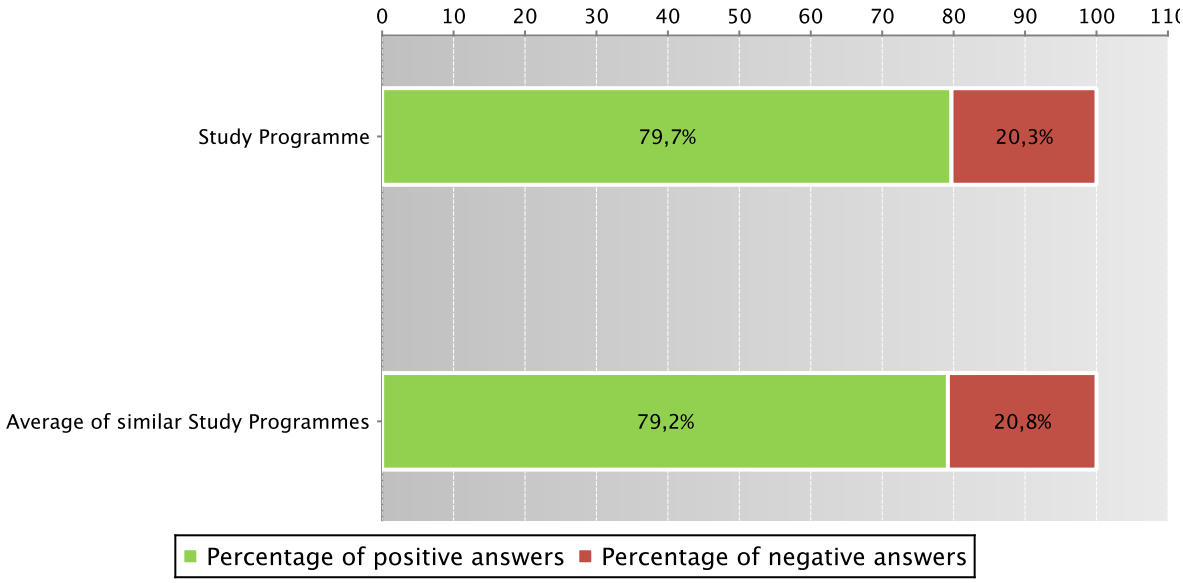
D.3.2. ADDITIONAL DATA ON OPINIONS OF STUDENTS

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 the academic year 2014/2015.
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, independently if they are enrolled in the current programme or a Study Programme running under pre-reform regulations (under ex D.M. 509).
The survey and subsequently analysis of the opinions of students attending the course is cared for the University of Bologna by Academic Affairs Division - Quality Assurance and Control and Finance Division - Support Planning and Evaluation Department. The overall results are available on the following link.

Students who responded positively to the question: "Are you generally satisfied with this course unit?" in academic year 2014/2015

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769) and of the Study Programme D.M. 509/99 Aerospace Engineering (code 0229)



Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769) and of the Study Programme D.M. 509/99 Aerospace Engineering (code 0229)

		N. of completed questionnaires	% of positive answers concerning the workload required by the course unit - Question 2	% of positive answers concerning the teachers adherence to the timetable of course unit - Question 5	% of positive answers concerning the consistence with what stated on the web site – Question 9	% of positive answers concerning the teacher's availability to clarify topics and offer explanations – Question 10	% of positive answers concerning the general satisfaction with the course unit - Question 12	% of positive answers concerning the delivering by the official teacher of the course unit – Question 13
a.y. 2012/2013	Study Programme	244	75,0%	91,7%		92,6%	70,5%	95,1%
	Average of similar Study Programmes	387,4	72,4%	92,6%		93,2%	77,3%	94,7%
a.y. 2013/2014	Study Programme	223	82,5%	90,6%	91,8%	96,9%	78,0%	98,2%
	Average of similar Study Programmes	450,7	76,2%	94,2%	94,1%	94,3%	78,9%	95,8%
a.y. 2014/2015	Study Programme	299	81,9%	97,0%	94,7%	94,6%	79,7%	99,0%
	Average of similar Study Programmes	564,3	77,8%	93,4%	94,1%	94,2%	79,2%	96,6%

Note: For completeness is reported the full texts of the query of the questionnaire in tab: number 2 "Is the workload required by this course unit proportionate to the number of university credits?", number 5 "Has the teacher adhered to the lesson timetable?", number 9 "Was the delivery of the course unit consistent with what stated on the degree programme website?", number 10 "Is the teacher available to clarify topics and offer explanations?", number 12 "On the whole, are you satisfied with the way this course has been taught?", and number 13 "Have all the lessons been delivered by the official teacher of this course unit?".

Further information on opinion of attending students available in the site with the overall survey results.

D.4. ENTRY INTO THE WORLD OF WORK

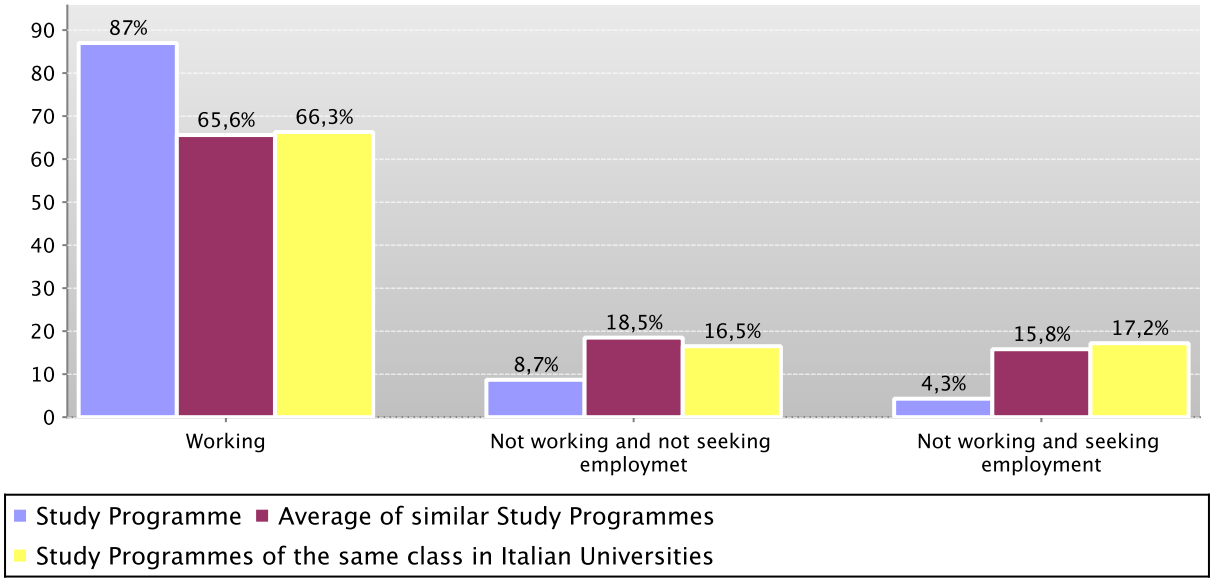
Employment situation of graduates of the Study Programme. The tables and the graphs provide information on the employment situation of graduates one year after graduating. Furthermore provide the percentage of graduates who have obtained credits for the activity of curriculum internship during their students career.

D.4.1. EMPLOYMENT SITUATION

Employment situation of graduates one year after graduating.
The data is taken from the AlmaLaurea Report on the employment condition of the graduates.
The **graph** shows who working; who not working and is enrolled in a 2nd Cycle Study Programme; not working, and not seeking employment; not working, and seeking employment.
In addition, the **table** shows the number of interviewed, the percentage of who is following a university programme or traineeship and the appropriateness of their degree to the job.
The data refers to graduates who attended the study programme ex DM 270/04. When Study Programme data are not available for three academic years, for some information the data of the previous Study Programme are available too.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), and the average of the Study Programmes of the same class in the Italian Universities for the graduates of the indicated calendar years.

Employment situation of graduates in 2014 one year after graduating

Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)



Data of the Study Programme D.M. 270/04 Aerospace Engineering (code 8197)

		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 2012	Study Programme	8	50,0%	25,0%	25,0%	25,0%	75,0%	25,0%
	Average of similar Study Programmes	35	63,3%	17,9%	18,8%	12,3%	57,7%	32,4%
	Study Programmes of the same class in Italian Universities	137	60,6%	20,4%	19,0%	13,9%	67,1%	28,0%
Graduation Year 2013	Study Programme	24	58,3%	25,0%	16,7%	20,8%	38,5%	61,5%
	Average of similar Study Programmes	29,9	59,3%	20,9%	19,8%	13,6%	54,0%	36,9%
	Study Programmes of the same class in Italian Universities	288	58,7%	20,8%	20,5%	15,3%	55,2%	36,4%
Graduation Year 2014	Study Programme	23	87,0%	8,7%	4,3%	8,7%	50,0%	45,0%
	Average of similar Study Programmes	33,6	65,6%	18,5%	15,8%	12,1%	57,2%	34,8%
	Study Programmes of the same class in Italian Universities	389	66,3%	16,5%	17,2%	12,1%	61,7%	29,2%

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

Notes to the AlmaLaurea Report of the Employment situation of the graduates

(1) "Employment and education situation": the share of employed is given by the sum of those who are working and who are working and are enrolled in a 2nd Cycle degree. The share of enrolled in the 2nd Cycle degree is given by the sum of those who working and studying and those who only studying.

(2) "Share of those who do not working, 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 processing of this data complies with D.M. 544 /2007, as later provided in D.D. no. 61/2008 and most recent D.M. 17, 22 September 2010 and D.M. 50, 23 December 2010 (transparency requirements).

(3) The evaluation of the effectiveness of the degree is obtained combining the request for the title of study at the work and the level of application of the skills learned at the university.

Further information on Graduates' Employment report of AlmaLaurea.

D.4.2. CREDITS OBTAINED BY GRADUATES THROUGH CURRICULUM INTERNSHIP ACTIVITY

The **table** shows the number of graduates, in a certain calendar year, who obtained credits for the activity of curricular internship, during their students career.
The data refers to graduates who attended the current programme. When Study Programme data are not available for three academic years, for some information the data of the previous Study Programme are also available.
The Study Programme data is compared with the average of similar Study Programmes (which belong to the same group), for the indicated calendar years.

Data of the Study Programmes D.M. 270/04 Aerospace Engineering (code 8197), Aerospace Engineering (code 8769)

		N. graduates	Graduates with credits acquired through internship activity (1)	Graduates with credits recognized as substitution of the internship activity (2)	% graduates with credits acquired through internship activity on the total number
2013	Study Programme	26	7	1	26,9%
	Average of similar Study Programmes	34,2	11,5	0,5	33,7%
2014	Study Programme	28	9	2	32,1%
	Average of similar Study Programmes	39,3	14,4	0,7	36,5%
2015	Study Programme	19	7	0	36,8%
	Average of similar Study Programmes	40,6	19,1	0,6	47,0%

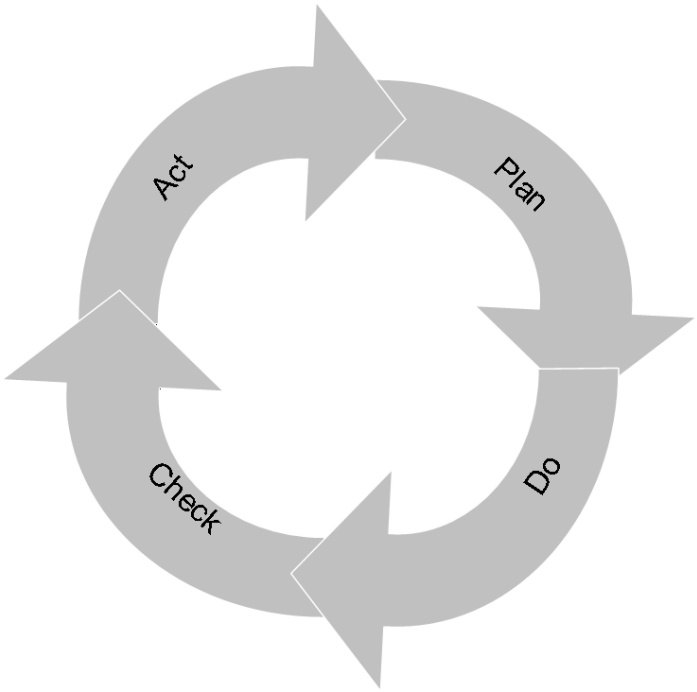
Notes:
(1) The data refers to the graduates who have obtained credits in their students career for the activity defined as a trainship / stage / internship.
(2) The data refers to the graduates who have in their students career the activity defined as a trainship / stage / internship obtained as recognition.
The percentage in the last column shows the relation between the "Graduates with credits acquired through internship activity" and the "N. graduates".

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 2013/2015).
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 2013/2015 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	x	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	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 evaluated 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 "Presidio di Qualità" 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.	Presidio della Qualità 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 online database service of graduates' curriculum vitae (2,280,000 CVs, from 73 Italian universities as of 24/02/2016), 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 University of Bologna study programmes of the same cycle which belong to the subject group.
The University of Bologna has divided its Study Programmes into 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

Group of students beginning their students career on the same academic year. Students which have been transferred or which enrolled to pass to another Study Programme, or enrolled to a second degree are not included.
From the publication of this study programme report is updated the procedure of the selection of the cohorts: the student belongs to the cohort of the study programme on which one has been enrolled on 31 December of the year of the beginning of student career.

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).

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.

Repeating

Student 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.

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 from studies

Suspension of studies by students who do not enroll in the next academic year or who drop out from the studies.