



# UNIVERSITÀ DEGLI STUDI DI PALERMO

**Department: Engineering**

**A.Y. 2017/2018**

## **DEGREE COURSE IN AEROSPACE ENGINEERING**

### **Characteristics**



Class of Master's Degree  
(MSc) on Aerospace and  
aeronautical engineering  
(LM-20)



2 YEARS



PALERMO



FREE ACCESS



2024

### **Educational objectives**

2nd cycle graduates in Aerospace engineering must:

- Possess advanced knowledge of the theoretical-scientific aspects of mathematics and other core sciences and be able to use this knowledge to interpret and describe complex engineering problems or problems requiring an interdisciplinary approach;
- Possess advanced knowledge of the theoretical-scientific aspects of engineering, and namely of aerospace and aeronautical engineering, in which they are able to identify, formulate and solve, in an innovative way, complex problems, or problems requiring an interdisciplinary approach;
- Be able to conceptualize, plan, design and manage complex and/or innovative systems and processes;
- Be able to design and manage highly complex experiments;
- Be equipped with knowledge of context and soft skills;
- Have knowledge in the field of corporate organization (corporate culture) and professional ethics;
- Be fluent in written and oral form in at least one European language other than Italian, with reference also to subject specific vocabularies.

Admission to degree courses of the class requires, an adequate command of general scientific methods and contents in basic scientific disciplines and in engineering disciplines, which are propaedeutic to the class specific disciplines.

The degree courses culminate in a major design work, ending up with a paper in which the candidate shows his/re command of the subjects, the ability to work independently and good communication skills.

The main career opportunities provided by master's degree courses are: production innovation and development, advanced design, planning and programming, management of complex systems, both in self-employment and in manufacturing or service companies and public administration. Graduates may find work in aircraft and aerospace industries; public and private companies for testing in the aerospace sector; business aviation; air traffic management institutions; military aviation and other aviation sectors; industries for the production of machinery and equipment where aerodynamics and lightweight construction are important.

The universities organize, in collaboration with public and private agencies, internships and apprenticeships.

### **Professional opportunities**

Profile:

Design engineer/analyst

Functions:

This is the typical professional employed in the industrial technical offices for the design and management of the product life cycle

Skills:

- Design and project of air and aerospace vehicles, as a team member and/or guide;
- Multidisciplinary Analysis of complex systems of the aerospace sector;
- Satisfaction and verification of compliance with certification standards

Professional opportunities:

Legenda: Per. = periodo o semestre, Val. = Valutazione (V=voto, G=giudizio), TAF= Tipologia Attività Formativa (A=base, B=caratterizzante, C=Affine, S=stages, D=a scelta, F=altre)

- Aeronautical and space industries widely present both nationally and in the EC;
- Industry for the production of machinery and equipment where aerodynamics and light structures are relevant, National Civil Aviation Authority (ENAC)

Profile:

Production engineer

Functions:

This is the professional carrying out the product engineering and manufacturing.

Skills:

- Identification and/or choice of equipment, processes and materials;
- Performance of industrial investigation activities on the technological characteristics of the materials and on production processes;
- Satisfaction and verification of compliance with certification standards;
- Resolution of breakdowns and proposal of plant improvements.

Professional opportunities:

- Aeronautical and space industries widely present both nationally and in the EC;
- Industry for the production of machines and equipment where aerodynamics and light structures are relevant.

Profile:

Maintenance area engineer

Functions:

This professional carries out responsibility functions in the management and planning system of aeronautical maintenance.

Skills:

- Functional control of aircraft;
- Application and verification of the actions foreseen in the aircraft maintenance plans;
- Satisfaction and verification of compliance with certification standards;
- Drafting and control of maintenance plans for aeronautical systems;

Professional opportunities:

- Air transport companies, aircraft maintenance agencies and companies, Air Force and aeronautical sectors of other armed forces, aeronautical and space industries.

Profile:

Research engineer

Functions:

This is a professional employed in the Research and Development branches of the aeronautical industry, for applied research for innovation.

Skills:

- Applied research;
- Design and management of highly complex experiments;

Professional opportunities:

Public and private bodies for experimentation and research in the aerospace field, University:

### Final examination features

It consists of the presentation and discussion of a written dissertation, containing the results of a work where the candidate will apply the knowledge and capabilities acquired during the course. The dissertation consists of an original project or a research on advanced aerospace issues. During the presentation and discussion of the dissertation, candidates should show their command of the subject, the capability of working autonomously and good communication skills. Students will carry out their activity under the guidance of one or more supervisors, one of which should be a professor of the Degree Course. The preparation of the final dissertation may be carried out at other Italian or foreign, public or private institutions and companies, in the framework of cooperation agreements.

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
14427 - AERONAUTICAL PRODUCTION TECHNOLOGIES <i>Fratini(PO)</i>	9	1	V	ING-IND/16	C
07140 - AERONAUTICS STRUCTURES <i>Davi'(PQ)</i>	6	1	V	ING-IND/04	B
16951 - AIRCRAFT AND SYSTEMS DESIGN <i>Benedetti(PO)</i>	9	2	V	ING-IND/04	B
02190 - AUTOMATIC CONTROL <i>D'Ippolito(PO)</i>	9	2	V	ING-INF/04	C
03549 - GAS DYNAMICS <i>Marretta(PA)</i>	12	2	V	ING-IND/06	B
Optional subjects	6				C

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Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
Free subjects	9				D
	<b>60</b>				
Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
04913 - AEROSPACE MATERIALS <i>Milazzo(PO)</i>	9	1	V	ING-IND/04	B
02374 - FLIGHT DYNAMICS <i>Grillo(PA)</i>	12	1	V	ING-IND/03	B
12658 - AEROSPACE ENGINES <i>Lombardo(PA)</i>	12	2	V	ING-IND/07	B
05917 - FINAL EXAMINATION	15	2	G		E
Optional subjects II	6				C
Stage and others	6				F
	<b>60</b>				

## OPTIONAL SUBJECTS

Stage and others	CFU	Sem.	Val.	SSD	TAF
11033 - INTERNSHIP 3 CREDITS	3	1	G		F
15458 - INTERNSHIP 4 CREDITS	4	1	G		F
11351 - INTERNSHIP 5 CREDITS	5	1	G		F
11028 - INTERNSHIP 6 CREDITS	6	1	G		F
11034 - OTHER EDUCATIONAL ACTIVITIES - 1 CREDIT	1	1	G		F
11035 - OTHER EDUCATIONAL ACTIVITIES - 2 CREDITS	2	1	G		F
11036 - OTHER EDUCATIONAL ACTIVITIES - 3 CREDITS	3	1	G		F
11037 - OTHER EDUCATIONAL ACTIVITIES - 4 CREDITS	4	1	G		F
11038 - OTHER EDUCATIONAL ACTIVITIES - 5 CREDITS	5	1	G		F
11039 - OTHER EDUCATIONAL ACTIVITIES - 6 CREDITS	6	1	G		F
Optional subjects	CFU	Sem.	Val.	SSD	TAF
01258 - EXPERIMENTAL STRESS ANALYSIS <i>Pitarresi(PA)</i>	6	1	V	ING-IND/14	C
17647 - MOBILE AND COOPERATING ROBOTICS <i>Fagiolini(PA)</i>	6	2	V	ING-INF/04	C
18552 - SCIENCE AND TECHNOLOGY OF COMPOSITE MATERIALS FOR AEROSPACE ENGINEERING <i>Valenza(PO)</i>	6	2	V	ING-IND/22	C
Optional subjects II	CFU	Sem.	Val.	SSD	TAF
02103 - COMPLEMENTS OF AUTOMATIC CONTROL	6	2	V	ING-INF/04	C
18053 - CORROSION AND PROTECTION OF AEROSPACE MATERIALS <i>Di Franco(PA)</i>	6	1	V	ING-IND/23	C
10069 - PROCESS DESIGN <i>Buffa(PO)</i>	6	1	V	ING-IND/16	C
02375 - STRUCTURAL DYNAMICS <i>Pirrotta(PO)</i>	6	1	V	ICAR/08	C

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