UNIVERSITÀ DEGLI STUDI DI PALERMO

Department: Engineering

A.Y. 2022/2023

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

Students of the 2nd cycle Degree in Aerospace Engineering acquire full command of the specific disciplines of the sector relating to fluid dynamics, flight dynamics and propulsion, as well as of those related to the construction, technological and testing aspects of Aerospace engineering.

They will also acquire the ability to apply the acquired knowledge to recognize, identify and analyse the typical aerospace design issues.

The fundamental objective is the development by the graduate of the ability to find, process, interpret and generalize, with a critical sense, the information required for the solution of multidisciplinary problems typical of the sector, possibly designing analytical and experimental campaigns that allow the production and acquisition missing data and information deemed useful.

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:
- 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)

After passing the relevant national qualification test, 2nd cycle graduates in Aerospace Engineering may enrol in Section A of the Board of Engineers – industrial sector.

Profile:
Production engineer

Functions:
Product engineering and manufacturing.

Skills:
- Identification and/or choice of equipment, processes and materials;

- Performance of industrial research activities on the technological features of materials and on their 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.

After passing the relevant national qualification test, 2nd cycle graduates in Aerospace Engineering may enrol in Section A of the Board of Engineers – industrial sector.

Profile:
Maintenance area engineer
Functions:
Management and planning of aeronautical maintenance systems.

Skills:
- Functional control of aircrafts;
- 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.

After passing the relevant national qualification test, 2nd cycle graduates in Aerospace Engineering may enrol in Section A of the Board of Engineers – industrial sector.

Profile:
Research engineer

Functions:
Employment 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.

After passing the relevant national qualification test, 2nd cycle graduates in Aerospace Engineering may enrol in Section A of the Board of Engineers – industrial sector.

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 preparation of the thesis, students will acquire the ability to work independently and to find the necessary information using the reference literature. In the presentation and discussion of the final paper, they will must demonstrate mastery of the topics covered, ability to place them in the reference context and a good level of communication. 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; the dissertation may be also prepared during internship periods. The methods of assignment and details on the performance of the final exam are specified in the 'Regulations for the final examination of the 2nd cycle Degree in Aerospace Engineering', available on the CdS web page, accessible via the link https://www.unipa.it/dipartimenti/ingegneria/cds/ingegneriaaerospaziale2024/regolamenti.html

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
14427 - AERONAUTICAL PRODUCTION TECHNOLOGIES *Fratini(PO)*	9	1	V	ING-IND/16	C

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)

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
03549 - GAS DYNAMICS *Gulizzi(RD)*	12	1	V	ING-IND/06	B
07140 - AERONAUTICS STRUCTURES *Lo Cascio(RD)*	6	2	V	ING-IND/04	B
22202 - AIRCRAFT CONCEPTUAL DESIGN *Benedetti(PO)*	9	2	V	ING-IND/04	B
02190 - AUTOMATIC CONTROL *Pedone(PC)*	9	2	V	ING-INF/04	C
Optional subjects	6				C
Free subjects (suggested)	9				D
	60				

Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
04913 - AEROSPACE MATERIALS *Milazzo(PO)*	9	1	V	ING-IND/04	B
02374 - FLIGHT DYNAMICS *Montano(RD)*	12	1	V	ING-IND/03	B
22205 - AEROSPACE PROPULSION *Lombardo(PA)*	12	2	V	ING-IND/07	B
05917 - FINAL EXAMINATION	15	2	G		E
Optional subjects II	6				C
Stage and others	6				F
	60				

OPTIONAL SUBJECTS

Stage and others	CFU	Sem.	Val.	SSD	TAF
21167 - INTERNSHIP 2 CREDITS	2	1	G		F
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
18053 - CORROSION AND PROTECTION OF AEROSPACE MATERIALS *Santamaria(PO)*	6	2	V	ING-IND/23	C
01258 - EXPERIMENTAL STRESS ANALYSIS *Pitarresi(PA)*	6	1	V	ING-IND/14	C
22204 - MACHINE LEARNING FOR AEROSPACE ENGINEERING - INTEGRATED COURSE	6	2	V		

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OPTIONAL SUBJECTS

Optional subjects	CFU	Sem.	Val.	SSD	TAF
- DATA ANALYTICS *La Cascia(PO)*	3	2	V	ING-INF/05	C
- MACHINE LEARNING *Tinnirello(PO)*	3	2	V	ING-INF/03	C
21621 - VIBRATIONS *Pirrotta(PO)*	6	1	V	ICAR/08	C
Optional subjects II	**CFU**	**Sem.**	**Val.**	**SSD**	**TAF**
21526 - MOBILE AND DISTRIBUTED ROBOTICS *Fagiolini(PA)*	6	1	V	ING-INF/04	C
22203 - AEROELASTICITY *Lo Cascio(RD)*	6	2	V	ING-IND/04	C
10069 - PROCESS DESIGN *Buffa(PO)*	6	1	V	ING-IND/16	C
18552 - SCIENCE AND TECHNOLOGY OF COMPOSITE MATERIALS FOR AEROSPACE ENGINEERING *Valenza(PO)*	6	2	V	ING-IND/22	C
Free subjects (suggested)	**CFU**	**Sem.**	**Val.**	**SSD**	**TAF**
01746 - NUMERICAL ANALYSIS *Francomano(PO)*	9	2	V	MAT/08	D

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