

Master's degree in Aerospace Engineering

Thursday, September 26th 2024

School of Engineering- Forlì Campus

Department of Industrial Engineering Via Montaspro, 97 Forlì

Master's degree in Aerospace Engineering

DIN – Department of Industrial Engineering School of Engineering

Forlì Campus

DIN offers courses in:

- Aerospace Engineering
- Mechanical Engineering

In Forlì



The University of Bologna is member of the PEGASUS Network





PEGASUS is the partnership of the best European aerospace universities and currently has 28 members in 11 different European countries.

Graduates from the University of Bologna will receive:

- a European certificate;
- an award in recognition of an individual student's multi-national experience.

CAMPUS DI FORLÌ

Master's Degree in Aerospace Engineering: Structure

Starting from A.A. 2020/2021 the Master's Degree offers

2 curricula





Aeronautics

Space



Master's degree in Aerospace Engineering: curriculum Aeronautics

Year 2 Year 1 DESIGN METHODS IN THE AEROSPACE NUMERICAL AND MATHEMATICAL INTERNSHIP or AEROSPACE STRUCTURES (C.I.) INDUSTRY (6 ECTS) METHODS FOR ENGINEERING (C.I.) INTERNSHIP ABROAD (12 ECTS) (6 ECTS) (12 ECTS) EXPERIMENTAL METHODS IN AERODYNAMICS (6 ECTS) ATMOSPHERIC FLIGHT DYNAMICS (6 ECTS) ADVANCED AERODYNAMICS (C.I.) AEROSPACE TECHNOLOGIES AND (12 ECTS) MATERIALS (6 ECTS) HELICOPTERS (6 ECTS) FINAL PROJECT* (24 ECTS) UNMANNED SYSTEMS (6 ECTS) ELECTIVE COURSE #1 (6 ECTS) FUNDAMENTALS OF AEROSPACE OR **ENGINEERING (12 ECTS)** ELECTIVE COURSE #2 (6 ECTS) ELECTIVE COURSE #3 (6 ECTS) Spring Autumn Spring Autumn Key: *The FINAL PROJECT can be made up of different activities: Furthering Basic Knowledge - For non-aerospace students only -FINAL PROJECT (24 ECTS) Aerospace Engineering Core Modules -INTERNSHIP (18 ECTS) + FINAL PROJECT (6 ECTS) -INTERNSHIP ABROAD (18 ECTS) + FINAL PROJECT (6 ECTS) Elective Modules -THESIS PREPARATION ABROAD (18 ECTS) + FINAL PROJECT (6 ECTS) Aeronautics Curriculum modules Individual Project Work

Master's degree in Aerospace Engineering: curriculum Space

Yea	r1	Year 2		
NUMERICAL AND MATHEMATICAL METHODS FOR ENGINEERING (C.I.) (12 ECTS)	AEROSPACE STRUCTURES (C.I.) (12 ECTS)	ROCKET PROPULSION (6 ECTS)	INTERNSHIP or INTERNSHIP ABROAD (6 ECTS)	
	ATMOSPHERIC FLIGHT DYNAMICS (6 ECTS)	RADIO COMMUNICATION AND RADAR SYSTEMS (6 ECTS)	FINAL PROJECT*	
ADVANCED AERODYNAMICS (C.I.) (12 ECTS)	SPACECRAFT ORBITAL DYNAMICS AND CONTROL (6 ECTS)	SPACECRAFT ATTITUDE DYNAMICS AND CONTROL (6 ECTS)		
FUNDAMENTALS OF AEROSPACE ENGINEERING (C.I.) (12 ECTS)	ELECTIVE COURSE #1 (6 ECTS)	SPACECRAFT SUBSYSTEMS AND SPACE MISSION DESIGN (6 ECTS)	(24 ECTS)	
	ELECTIVE COURSE #2 (6 ECTS)	ELECTIVE COURSE #3 (6 ECTS)		
Autumn	Spring	Autumn	Spring	
ey: Furthering Basic Knowledge – Fo	r NON-AEROSPACE STUDENTS ONLY	*The FINAL PROJECT can be made -FINAL PROJECT (24 ECTS)	e up of different activities:	
Aerospace Engineering Core Modules		-INTERNSHIP (18 ECTS) + FINAL PROJECT (6 ECTS)		
Elective Modules		-INTERNSHIP ABROAD (18 ECTS) + FINAL PROJECT (6 ECTS)		
Space Curriculum modules		-THESIS PREPARATION ABROAD (2	18 ECTS) + FINAL PROJECT (16 ECTS)	
Individual	Project Work			

Fundamentals of Aerospace Engineering

Fundamentals of Aerospace Engineering I.C. is exclusively reserved to students who achieved less than 24 ECTS in the scientific disciplinary sectors ING/IND-03, ING/IND-04, ING/IND-05, ING/IND-06, ING/IND-07 (or equivalent if obtained abroad) in the previous university career. These students are notified during selection and admission procedures.

FLIGHT MECHANICS (3 ECTS)

FUNDAMENTALS OF AERODYNAMICS (3 ECTS)

FUNDAMENTALS OF AIRCRAFT DESIGN (3 ECTS)

> PRINCIPLES OF AEROSPACE PROPULSION (3 ECTS)



Master's degree in Aerospace Engineering: Elective teaching activities

Elective modules #1 and #2 - Spring

SIMULATION AND MODELING IN FLUID DYNAMICS (6 ECTS)

HELICOPTERS (6 ECTS)

SPACECRAFT ORBITAL
DYNAMICS AND CONTROL (6 ECTS)

FUNDAMENTALS OF ASTROPHYSICS (6 ECTS) – TAUGHT IN BOLOGNA

MATERIALS CHEMISTRY (6 ECTS)

LAUNCHERS AND RE-ENTRY (6 ECTS)

Elective modules #3 – Autumn

ROCKET PROPULSION (6 ECTS)

RADIO COMMUNICATION AND RADAR SYSTEMS (6 ECTS)

SPACECRAFT ATTITUDE
DYNAMICS AND CONTROL (6 ECTS)

SPACECRAFT SUBSYSTEMS
AND SPACE MISSION DESIGN (6 ECTS)

ADVANCED GUIDANCE AND CONTROL OF AIRCRAFT AND SPACECRAFT (6 ECTS) DESIGN METHODS IN THE AEROSPACE INDUSTRY (6 ECTS)

> EXPERIMENTAL METHODS IN AERODYNAMICS (6 ECTS)

AEROSPACE TECHNOLOGIES AND MATERIALS (6 ECTS)

UNMANNED SYSTEMS (6 ECTS)

DEEP SPACE NAVIGATION (6 ECTS)



Master's degree in Aerospace Engineering: Internship and Final Thesis

INTERNSHIP or INTERNSHIP ABROAD (6 ECTS)

FINAL PROJECT*
(24 ECTS)

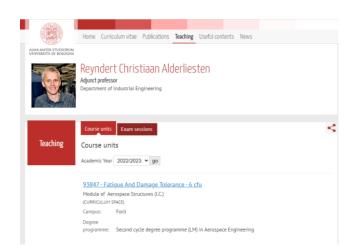
*The FINAL PROJECT can be subdivided in different group to track activities carried out in companies or abroad, but the overall effort required to students is ALWAYS 24 ECTS.



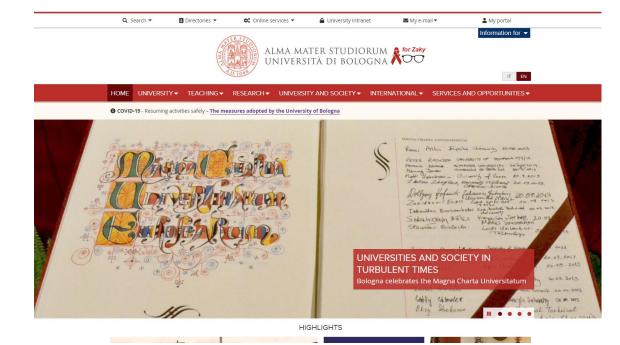
Where can I find all this information?

Degree website

Professors personal websites



UNIBO website



CFU-University Educational Credits

CFU are a tool used to measure the quantity of learning, including individual study, required of a student in order to acquire knowledge and skills in the learning activities envisaged in the degree programme.

CFUs are obtained by passing exams or other assessment tests.

Credits define the quantity of work; the quality of the student's performance on the other hand is documented by a grade (18/30 minimum to pass).

ECTS=CFU

1 CFU = 25 hours

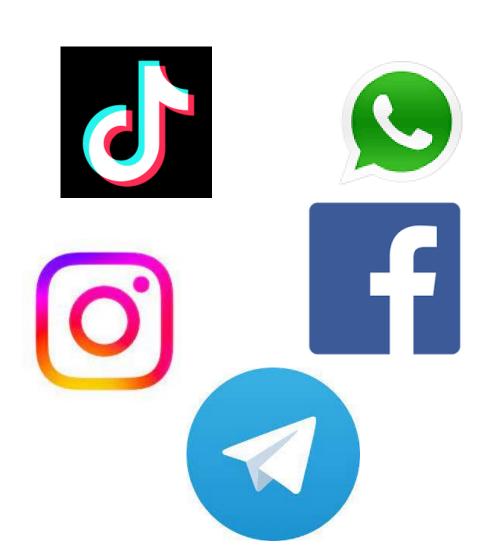
10 class lecture + 15 individual study

6 CFU = 150 hours

60 class lecture + 90 individual study



I don't understand how I failed this exam







ALMA MATER STUDIORUM JNIVERSITÀ DI BOLOGNA CAMPUS DI FORLÌ

Don't wait January exam session to start studying

- Raise your hand during lessons, ask questions and be participative
- Consult professors during office hours
- Ask for help to our Tutor
- If you think you need some revision, all students are welcome to attend the Fundamentals of Aerospace Engineering I.C.



Who are my points of contact?

Professor Fabrizio Giulietti
Programme Coordinator
Giulia Chiadini
Aerospace Engineering Tutor
Federica Remor
Tutor for International Mobility
Giulio Traversa

For contact details, please visit: https://corsi.unibo.it/2cycle/AerospaceEngineering/contacts



Degree Director

Prof. Fabrizio Giulietti



- The Director is responsible for the implementation of the Board's guidelines and liaises with the relevant Departments and Schools
- Represents the master's degree at guidance events
- Can be consulted for issues related the activities of the master's degree

Fabrizio.giulietti@unibo.it

Office hours: send an eamil for an appointment



Programme Coordinator

Giulia Chiadini



- Point of contact for the master's degree Aerospace Engineering and Mechanical Engineering for Sustainability students
- Support with applications and enrolment
- Welcome and informative meetings and events
- Support for Italian and foreign students during their academic career

<u>Didatticaforli.ingstudenti@unibo.it</u> <u>Giulia.chiadini2@unibo.it</u>



Aerospace Engineering Tutor

- acts as an interface between the students and the Degree
 Programme to offer a reference for the teaching activities
- to collect information and comments, as well as to receive any claims or feedbacks about existing critical conditions or any requests regarding logistic and organizational aspects or other issues.
- maintaining the contacts with students who may for various reasons (for example, job activities) encounter major difficulties at tests/exams and of setting up a clear programming for their studies and career.

didatticaforli.tutoringaerospaziale@unibo.it

Office hour: via Montaspro 97 (1° floor office 18) upon appointment by email



International Mobility Tutor



- Help to fill out the Learning Agreement
- Support for students involved in Erasmus+ mobility (studies and traineeship)
- Help incoming international students
- Information for research and thesis preparation abroad

Office hour: upon appointment by email
Via Montaspro 97, room 18



MAE Facebook Page

@aerospaceengineering.unibo
Official page of the master's degree in Aerospace Engineering

Updates on events and opportunities, interesting articles, calls for applications etc.



What am I supposed to do as a new student?

- Complete your enrolment
- Finalize tuition fees calculation
- Complete the study plan
- Attend lessons
- Sign up for exams



Complete your enrolment

To complete the enrolment, you need to **validate your identity** and activate your career. Italian students can use **SPID credentials or the CIE** to log into Studenti Online so that the identity will be automatically validated.

If you are an international Student with a foreign qualification, please contact the Student Administration Office in Forlì Campus to book an appointment and validate your identity. After this procedure and after all the necessary documents regarding your bachelor's degree have been submitted, your career will be active, and you can start to use all the services of the University.

You will receive an e-mail on your inbox @studio.unibo.it with the instructions to **get the badge**.

SPID is the digital and personal identity of each citizen, with which he/she is recognized by the Public Administration to use digital services in a personalized and secure way.

In order to activate your SPID you need to possess a valid Italian identification document. If you have a EU or non-EU citizenship, you will need to request one at the Anagrafe office of Forlì after you register your residency in Italy.

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Complete your enrolment- Contact the Student Administration Office

Get in contact with the Student Administration Office through the **VIRTUAL HELPDESKS** -The new service for video calling your Student Administration Office and Right to Higher Education Offices

You can speak to a dedicated operator by connecting or by making an appointment during opening hours

Office hours

Tuesday 09:00-12:00 V 14:00-15:30 V Wednesday 09:00-12:00 V Thursday 09:00-12:00 P 14:00-15:30 V Friday 09:00-12:00 V

Address: Padiglione Melandri, Piazzale Solieri 1, 47121 Forlì

E-mail: segforli@unibo.it



Complete your enrolment- Non-EU citizens requiring a permit of stay

A very useful check-list is available at

https://www.unibo.it/en/teaching/enrolment-transfer-and-finalexamination/international-students-how-to-prepare-for-enrolment-1/checklist-fornon-eu-students-residing-abroad-already-admitted-to-a-degree-programme

Regarding doubts about the Residence Permit:

https://www.unibo.it/en/teaching/enrolment-transfer-and-final-examination/visa-and-rules-for-residence-in-italy/residence-permit

If you matriculated by submitting only the entry VISA for study purposes, your (conditional) enrolment will be activated only after the receipt has been recorded, so send a copy to the Student Administration Office.

Having collected your residence permit, submit a copy to the Student Administration Office, as your enrolment is subject to the acquisition of the residence permit. If you forget it, after 180 days from the application date you will no longer be allowed to sit for exams or request certificates.

CAMPUS DI FORLÌ

Complete your enrolment- Contact the Student Administration Office

Particular situations or doubts, especially of Non-EU citizens with a VISA, can be discussed individually.

Please send an email to <u>didatticaforli.ingstudenti@unibo.it</u> for an appointment.

For all the information, please refer to the Unibo website: http://www.unibo.it/en/teaching/enrolment-transfer-and-final-examination



Tuition fees and ER.GO Scholarships

Tuition fees are calculated based on the 2024 ISEE value with special subsidies in relation to the right to higher education.

With an **ISEE value up to €27,000**, first year students and students that meet merit requirements are totally exempted from paying tuition fees.

Above this limit, fees are calculated progressively, more favorably for students who have a low income and meet merit requirements.

Other situations can be found here at the specific page: https://www.unibo.it/en/study/enrolment-fees-and-other-procedures/degree-programmes/tuition-fees-and-exemptions/fees-and-exemptions-amounts-deadlines

FAQ: https://www.unibo.it/en/study/enrolment-fees-and-other-procedures/degree-programmes/tuition-fees-and-exemptions/faqs-frequently-asked-questions-tuition-fees

As an **international student**, your tuition fees will be calculated according to your country of origin and the country where your family has income and assets.

https://www.unibo.it/en/study/enrolment-fees-and-other-procedures/degree-programmes/tuition-fees-and-exemptions/reduced-fixed-fee-for-citizens-of-particularly-poor-and-developing-countries-or-non-eu-non-oecd-countries

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Tuition fees and ER.GO Scholarships

Questions about fees, exemptions and scholarships? Talk to us on Fridays!

Join the online meetings in which University of Bologna and ER.GO operators offer information on fees, opportunities for exemption or reduction, and how to obtain right-to-study benefits.

When to participate

Every Friday from 28 June to 15 November, from 11:00 to 13:00.

We will suspend the meetings on 16 August and 23 August.

How to participate

The meetings are conducted entirely in Italian and online through the Microsoft Teams platform. On Fridays at 11:00, acccess the meeting room.

https://www.unibo.it/en/news-and-events/notice-board/questions-about-fees-exemptions-and-scholarships-talk-to-us-on-fridays



Studenti Online Homepage

d the onsult the mobile devices, like smartphones and tablets, it is necessary to delete the account setup and recreate it within the same app (e.g. the email program pre-installed on the mobile device) by selecting Office365 mode, if available, or Exchange mode.

and the nes

Requests in progress



Bookings

Status

Applications concluded



ld Type

Study grant

Study grant

Description

Bando Congiunto Unibo - Er.go Per L'assegnazione Di Interventi A Favore Di Studenti In Situazioni Di Particolari Difficolta' – Anno Accademico 2021/2022

Bando Di Concorso Per L'assegnazione Di Incentivi Alle Iscrizioni A Corsi Di Studio Inerenti Ad Aree Disciplinari Di Particolare Interesse Nazionale Per L'anno Accademico

Start date

01/03/2022 See detail »

23/11/2018 See detail »

esk tudenti ion

See all »



Admission application Take part in the selection



Registration

Enrol in a Degree Programme



Exams - AlmaEsami

Enrol for exams and progress tests



Bookings

Register for entrance exams, language test, job placement ...



Transport pass application

Apply for TPER transport pass at a subsidised price



Fee situation -Enrolment

Check your fee situation and make payments

teaching

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dential udents



Certificates and selfcertifications

Print self-certifications and certificates with stamp



On-line records book

Check your university career



Calls

Opportunities offered to you by the University



Language exam recognition

Request language exam recognition



Study plan

Complete your study plan



Launch the graduation procedure



Programme transfer

Request to transfer to another Degree Programme



Transfer

Request transfer to another university



Withdraw from studies

Complete the application for withdrawal from studies



Suspension of studies

Request Suspension of studies



Diploma supplement

Request the Diploma Supplement



International mobility -AlmaRM

International exchange programmes



Internships

Find internship offers and host organisations Activate the internship



Job placement

Search the job vacancy noticeboard



Badge duplicate

Fill in the badge duplicate application



Inserisci il tuo CV Inserisci il tuo CV per

Almalaurea



Extension of the study period as part time student

Apply for the extension of the study period as



Shortening of the degree program

Apply for career shortening



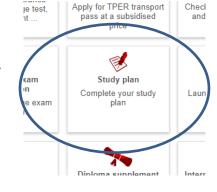
ATER STUDIORUM SITÀ DI BOLOGNA IPUS DI FORLÌ

Complete your study plan for a.y. 2024-2025

The study plan is the complete set of exams that you need to sit in order to graduate. Some exams are compulsory, while others are **elective**.

A study plan can be presented by properly enrolled students who have paid their tuition fees and, in the case of international students, who hold a valid residence permit.

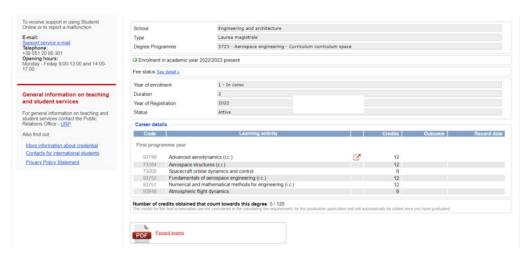
To be submitted **online** on https://studenti.unibo.it



<u>First period: 30th September to 8th November 2024</u> <u>Exceptional extra opening</u> from November 25th to December 20th 2024 just for first year students <u>Second period: 10th February to 7th March 2025</u>



Complete your study plan for a.y. 2024-2025:



Scuola		Ingegneria e architettura					
Tipo		Laurea magistrale					
Corso di studio		5980 - Mechanical engineering for sustainability					
Iscrizione an	no accademico 2023/	2024 presente					
Situazione tass	e <u>Vedi dettaglio</u> »						
Anno di iscrizio	ne	1 - In corso					
Durata Anno Immatricolazione		2 2023					
Dettaglio carr	iera —						
Cod.		Attività formativa		Crediti	Esito		
Primo anno o	di corso						
Primo anno o							
B2377	Electric energy of	onversion		6			
	Electric energy of Engineering des		C	6 12			
B2377	Engineering des		C	-			
B2377 B2369	Engineering des Mechanics and of Mathematical mo	ign (i.c.) dynamics of machines odels for industrial engineering	♂	12			
B2377 B2369 B2376	Engineering des Mechanics and of Mathematical mo	ign (i.c.) dynamics of machines	C	12			



Complete your study plan for a.y. 2024-2025 Aerospace Engineering

Elective activities must count for **18 CFU** of your study plan.

You can choose:

From 6 to 12 CFU chosen at year 1 and from 6 to 12 CFU at year 2, for a total of 18 CFU.

Students may ask the Degree Board to add some different activities to their study plan which are not included in the Degree curriculum but offered by other Degrees of the University of Bologna.

In this case, you must submit the paper module to the Engineering Degree Office.

The Degree Board will evaluate the request and approve/deny the proposal.



Attending lessons and Academic calendar

https://corsi.unibo.it/2cycle/AerospaceEngineering/teaching-calendar

			<	29 Sep 2024 >			DAY WEEK
	MON 9/23	TUE 9/24	WED 9/25	THU 9/26	FRI 9/27	SAT 9/28	SUN 9/29
8am							_
9am	93756 - FUNDAMENTALS OF AEROSPACE ENGINEERING (I.C.) / FUNDAMENTALS OF AIRCRAFT DESIGN (3			37261 - NUMERICAL AND MATHEMATICAL METHODS FOR ENGINEERING (I.C.) / NUMERICAL ANALYSIS (G CFU)			
10am				Lucia Romani AULA 0.4			
11am	37261 - NUMERICAL AND MATHEMATICAL METHODS FOR ENGINEERING (I.C.) / NUMERICAL ANALYSIS (6 CFU)			35143 - NUMERICAL AND MATHEMATICAL METHODS FOR ENGINEERING (I.C.) / MATHEMATICAL METHODS FOR			
12pm	Lucia Romani LAB 0.3	93749_1 - ADVANCED AERODYNAMICS (I.C.) / APPLIED AERODYNAMICS / (1) MODULO 1 (6 CFU) Gabriele Bellani		ENGINEERING (6 CFU) Matteo Franca AULA 0.4	93754 - FUNDAMENTALS OF AEROSPACE ENGINEERING (I.C.) / PRINCIPLES OF AEROSPACE		
1pm		AULA 0.4	35143 - NUMERICAL AND MATHEMATICAL METHODS FOR ENGINEERING (I.C.) / MATHEMATICAL		PROPULSION (3 CFU) Fabrizio Ponti AULA 0.4		
2pm			METHODS FOR ENGINEERING (6 CFU) Matteo Franca AULA 0.4				



Italian Language classes for international students (B3120)

Self-study tutor-assisted learning for Italian language beginners

The Language Center of the University of Bologna offers online Italian courses to international students who are absolute beginners in the Italian language and who are enrolled in degree programs that are taught in English and have set an Italian language requirement.

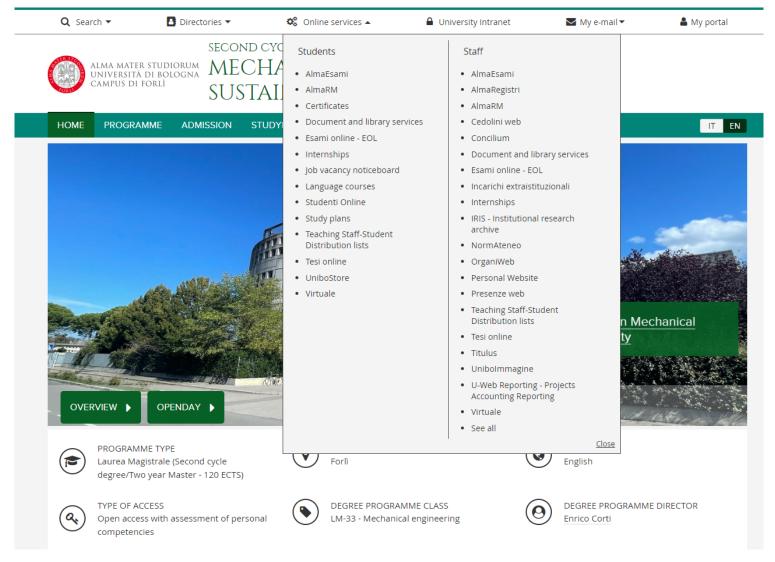
The course is offered **online in blended mode** with 10 hours of self-study and 40 hours of online meetings with a tutor (5 times a week for 4 weeks). The course is offered for CEFR levels A1 and absolute beginners. Enrolment in the class is free of charge.

To participate, you must register through StudentiOnline (SOL Bookings). The 2024/2025 calendar and the deadlines for registration will be made available on this page.

https://centri.unibo.it/cla/en/courses/self-study-tutor-assisted-learning-for-italian-language-beginners

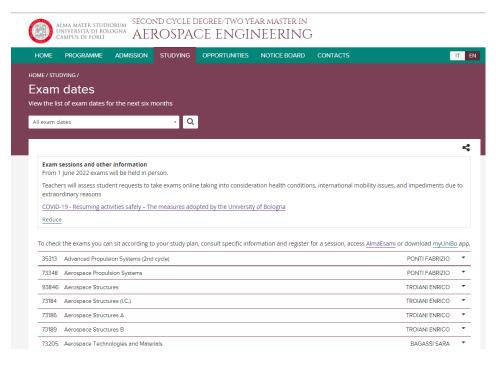


Online services





Sign up for exams





Health and Safety in the Workplace training course aimed at students

The training courses, partly online and partly taught in class, targets <u>all those</u> students who will carry out activities in university laboratories or in private companies during their degree programs (training in laboratory, internships projects, thesis, etc.) and are for these reasons treated equally to workers (art.37 Italian law nr. 81/08, letter a)

This is an important opportunity aimed to provide knowledge and raise awareness on health and safety in the workplace, but most of all it is mandatory.

General training (module 1) provides a no-expiry certification which is recognized in private and public company in Italy. Training on specific risk types (module 2 and 3) provide a certification expiring after 5 years (external companies can recognize this certification or part of this).

More info and registration instructions at

CAMPUS DI FORLÌ

https://corsi.unibo.it/2cycle/AerospaceEngineering/health-and-safety-mandatory-training https://corsi.unibo.it/2cycle/MechanicalEngineering-Forli/health-and-safety-mandatory-training

Study halls and libraries



Teaching Hub (Viale Corridoni n. 20) Monday- Friday 08:00 - 21:00; Saturday 08:00 - 13:00



Sala Studio University Canteen (Piazzale Igino Lega n. 20) Monday- Friday 9:00 - 18:00.



Central Library "Roberto Ruffilli" (Via Caterina Sforza, 45) orari: Monday- Friday 9:00-24:00 Saturday-Sunday 9:00-18:00.



Residenza Universitaria "Sassi Masini" (Via Maroncelli, 15) orari: Tuesday18:00 – 24:00; Friday, Saturday, Sunday 8:30 – 24:00.



Study room at the Engineering Department (Via Montaspro, 97) orari: dal Monday- Friday 8:00 - 19:00.



Other services at Forlì Campus

The laboratories have 170 personal computers from which internet access.

 Laboratori Informatici di Campus (LABIC)

Two black and white laser printers are installed at the Labic and are available to users and a printer is installed on the ground floor of the Engineering headquarters.

Printing service

It deals with the promotion of basic and competitive sport within all university schools in Bologna and the surrounding areas.

 CUSB Centro Universitario Sportivo Bologna

The Service is aimed at young people who have emotional and relational problems, affective and behavioral disorders, difficulties in university and/or working life, and is free for students of the University of Bologna.

 SAP Servizio di Aiuto Psicologico

CAMPUS DI FORL

Incoming events

European Researchers Night-27/09

At the CICLoPE lab in Predappio (Forlì-Cesena)

https://dit.unibo.it/it/eventi/notte-europea-dei-ricercatori-2024









Questions?







Thank you for your attention!

The Staff of the master's degree of Aerospace Engineering and

Didatticaforli.ingstudenti@unibo.it