



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST

Transdisciplinary Hybrid Rocket
University Students' Training



THRUST

Transdisciplinary Hybrid Rocket
University Students' Training

meets



EUROC

EUROPEAN ROCKETRY CHALLENGE

11 Apr 2022 – 10:00



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHY

WHO

WHAT

WHEN

WHERE

HOW



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHY

Because why not.

*We chose to [...] do [...] things not because they are
easy, but because they are hard.*

Competition drives progress.

We love space.

It's ~~not~~ rocket science.

We want to learn by doing.



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects

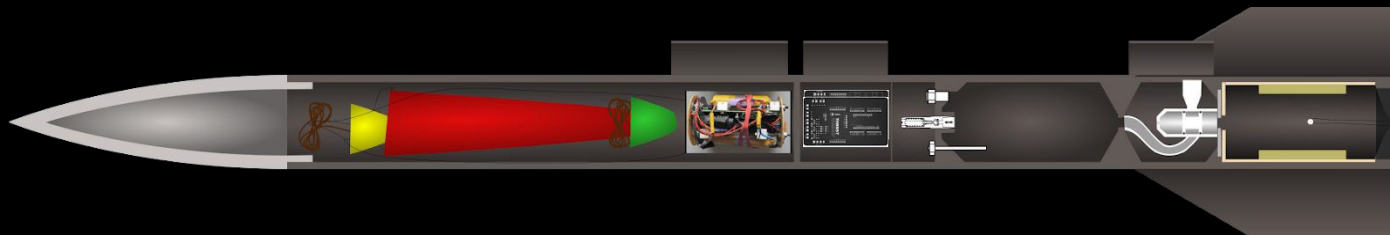
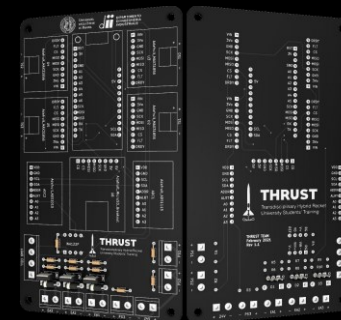
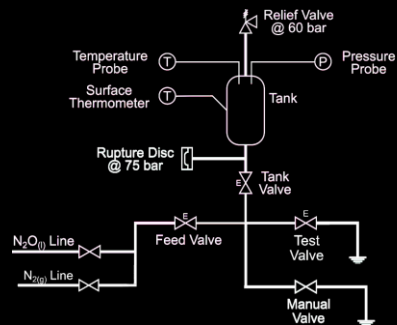


THRUST

Transdisciplinary Hybrid Rocket
University Students' Training

WHAT

SFR : BFR = THRUST : SpaceX





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHAT EuRoC





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHAT

Teams

Aerostructure

Electronics

Propulsion

Recovery

Payload

Testing

Management

System

Outreach



WHAT

Main activities

Physical Models
and Coding

Requirement
Management

Tradeoff Reports

Budgeting

Branding

Design and
Manufacture

Prototyping

Risk Management

Communication

many more

Mission Analysis

Documentation

Presentation

Sponsoring

Scheduling



ELECTRONICS

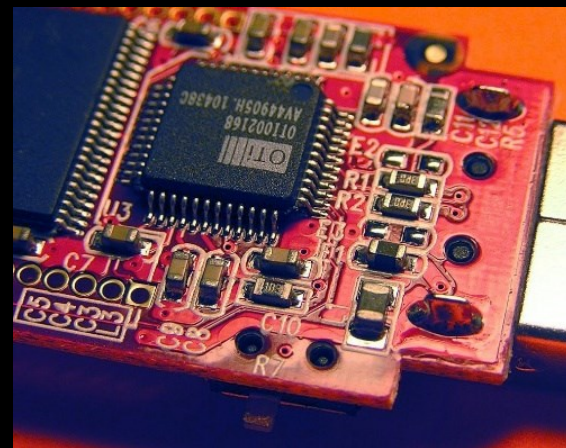
What we have to do...



Ground
Station

Electronic
Board

Firmware



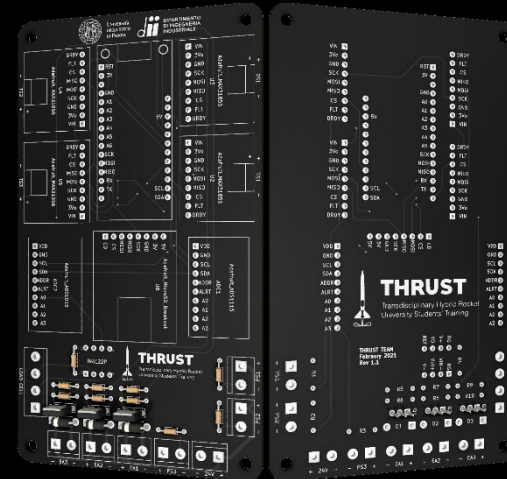
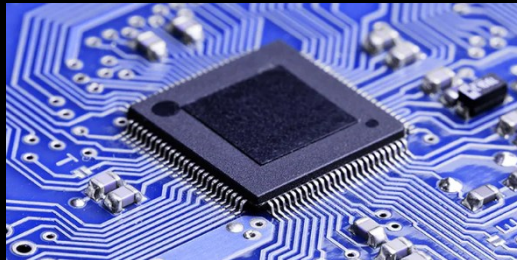


ELECTRONICS

We are searching for students that:



- Have experience in kicad (or alternative tools for the design of electric board)
- Know how to work with microcontrollers (Arduino, Teensy, esp32, smt32, rp2040)
- Have basic knowledge in coding
- Have basic knowledge in telecommunication or experience with LoRa, MavLink or other protocols (optional)
- **WANT TO PUT THEMSELVES OUT THERE**
- **WANT TO LEARN BY DOING**





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2022-2023

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHEN

Project milestones

May 2022	Sep 2022	Oct 2022	Nov-Dec 2022
Testing campaign	Launch campaign (Medicina, BO)	Check of the results	Definition of new milestones



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2022-2023

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHEN

Project milestones

Last launch
Campaign in
Aug-Sep 2023



EuRoC
Competition in
Oct 2023





UNIVERSITÀ
DEGLI STUDI
DI PADOVA


THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHERE




THRUST Student Project


Transdisciplinary Hybrid Rocket University Students' Training


Università degli Studi di Padova <http://thrust-team.it>


[Overview](#) [Repositories 15](#) [Packages](#) [People 22](#) [Teams 6](#) [Projects](#) [Settings](#)


Pinned


**sfr** Public
Technical documents produced for the research, design, and development of THRUST Team's first launcher: SFR.
★ 1

**docs** Public
Public documentation of THRUST Student Project's knowledgebase.
Batchfile


**training** Public
THRUST Student Project's test base for new recruits.
2

**mpropep** Public
MATLAB wrapper for cpropep thermochemical tool.
MATLAB ★ 2

**thrust-team.github.io** Public
Front page of the project.
CSS

**ecss** Public
European Standards for Space Project Developments

People



[View all](#)

[Invite someone](#)

Top languages

MATLAB CSS TeX Batchfile

Repositories

Find a repository...

Type Language Sort [New](#)



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

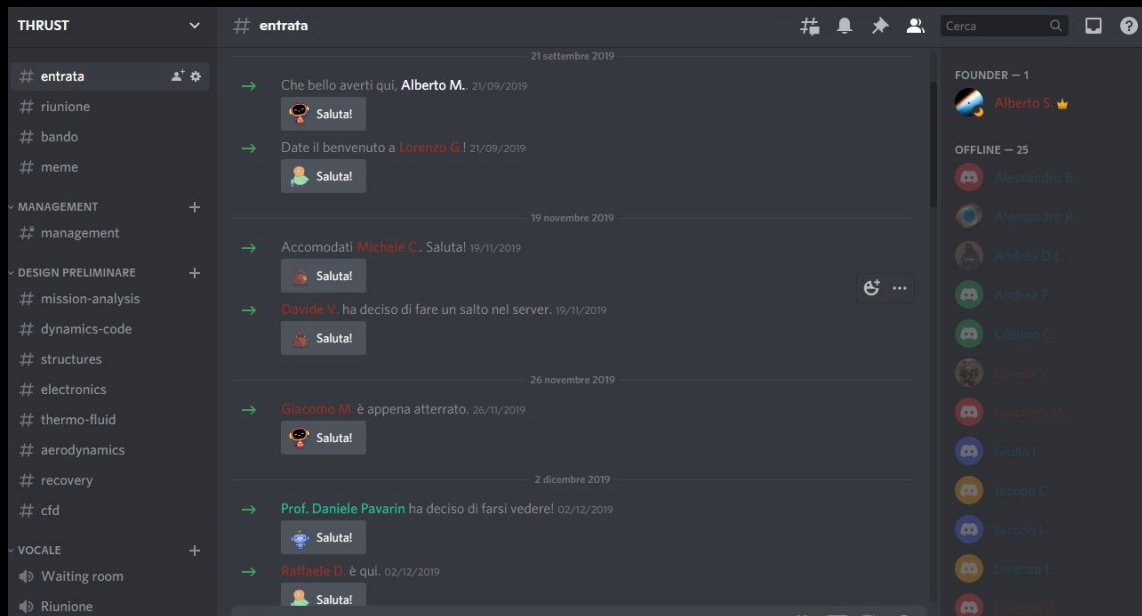
THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHERE





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHERE





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHERE





UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHO

Transdisciplinary

Hybrid

Rocket

University

Students'

Training

People that join the project come from different backgrounds and disciplines. The project integrates their skills by collaborating towards a shared goal.



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHO

Transdisciplinary

Hybrid

Rocket

University

Students'

Training

The goal is to build a rocket with hybrid technology, in which the Space Propulsion Laboratory of the University has many years of expertise.



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHO

Transdisciplinary

Hybrid

Rocket

University

Students'

Training

The project is made **by** the students
for the students of the University of
Padua.



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

W H O

2019-20

Alberto Scomparin
Davide Vertuani
Alberto Modesti
Lorenzo Gerolin
Jasmine Giacomelli
Giacomo Moresco
Michele Cogo
Raffaele Donazzon
Jacopo Irone

2020-21

Alberto Scomparin
Lorenzo Gerolin
Raffaele Donazzon
Jacopo Irone
Paolo Bertosin
Matteo Fiorio
Lorenzo Fiorese
Massimo Dau
Andrea De Lorenzi

2021-22

Jacopo Irone
Matteo Fiorio
Lorenzo Fiorese
Massimo Dau
Andrea De Lorenzi
Riccardo Casara
Andrea Pacilli
Mattia Candelato
Marco Dalla Torre

Luca Brovedani
Alessandro Busato
Giulia Lana
Alessandro Rampazzo
Cosimo Casotto
Jacopo Cappozzo
Matteo Andriolo
Edoardo Romani
Luca Mancini

you...?



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

WHO

The following will be the most crucial year.

Most of the founders and the first leader will not be part of the project, and the number of participants is at record high.



WHO

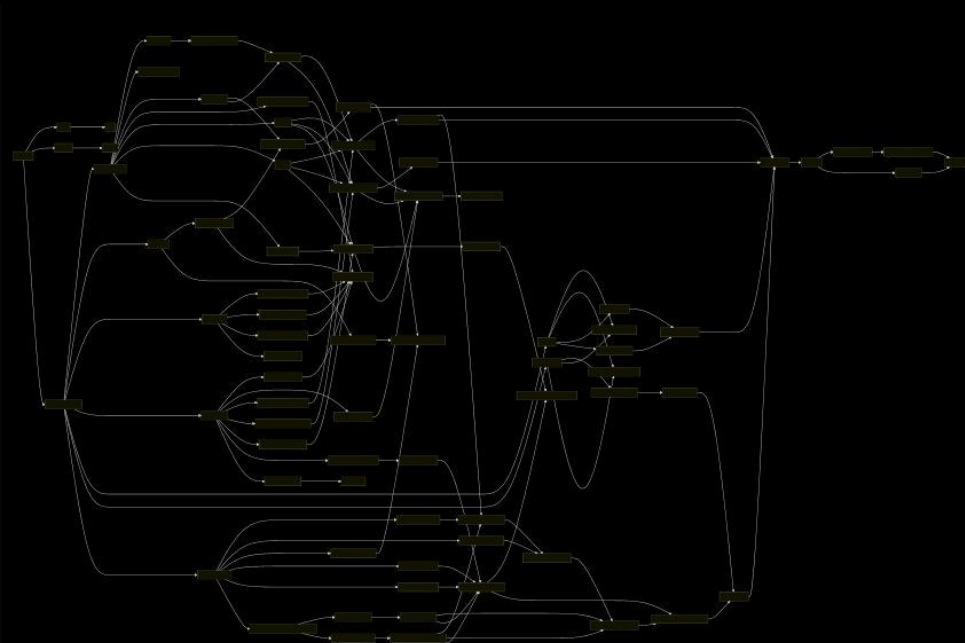
The requirements for joining the project are *simple*, but hard:

- You must fiercely **chase** the goal and the mission
- You must **become** the project
- You must not **stop** if you don't know something
- **If you** fail you must **try again**. Failure is the best teacher.
- You must make it so that your **colleagues won't repeat** your mistakes
- You'll have to show your work and let it be criticized by your peers

If it scares you, it's ok. If you're willing to do it anyway, join us.



HOW



A structured plan of action allows everyone to see the bigger picture and find where they can contribute.



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022

Introduction for new prospects



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

Thank you for your time.

Any questions?



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

THRUST 2021-2022



THRUST
Transdisciplinary Hybrid Rocket
University Students' Training

CONTACTS

THRUST TEAM

Riccardo Casara

Andrea Pacilli

Matteo Andriolo

thrust.unipd@gmail.com

riccardo.casara@studenti.unipd.it

andrea.pacilli@studenti.unipd.it

matteo.andriolo.2@studenti.unipd.it



[thrust.team](https://www.instagram.com/thrust.team)