

Aerospace Engineering

TU Delft

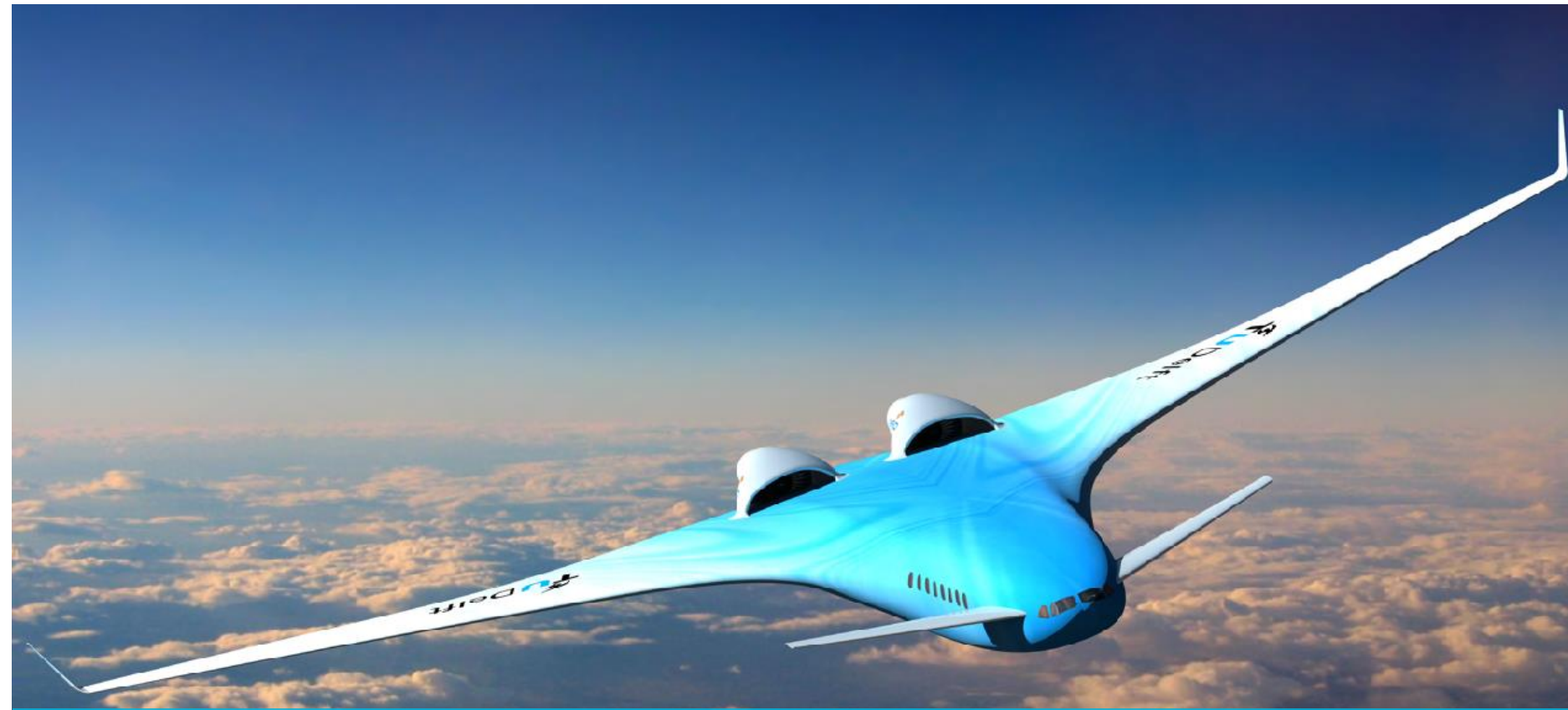


Aerospace Engineering

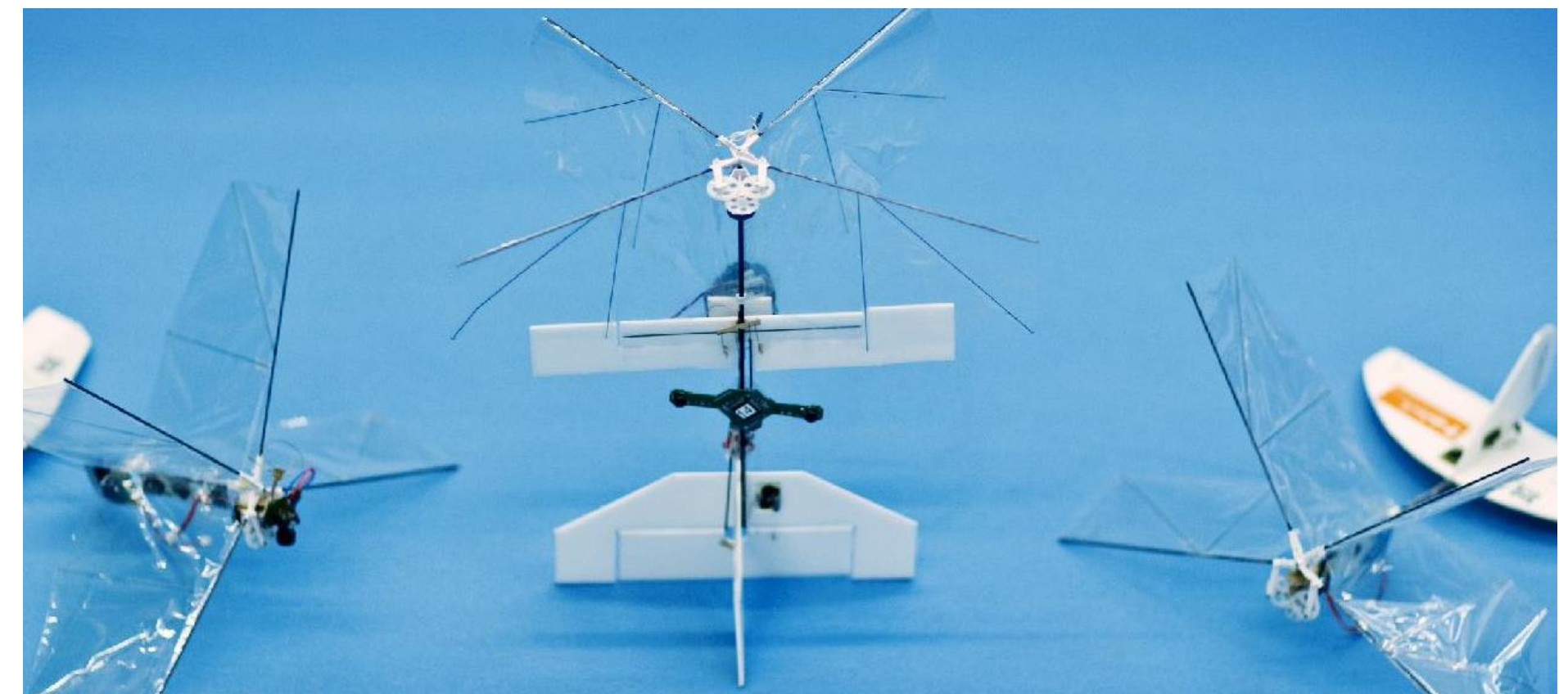
1. Challenges for the Aerospace Engineer
2. The Aerospace Engineering BSc programme
3. After the BSc: Master and career prospects
4. Are you a future Aerospace Engineer?
5. The life of an Aerospace Engineering student

Challenges

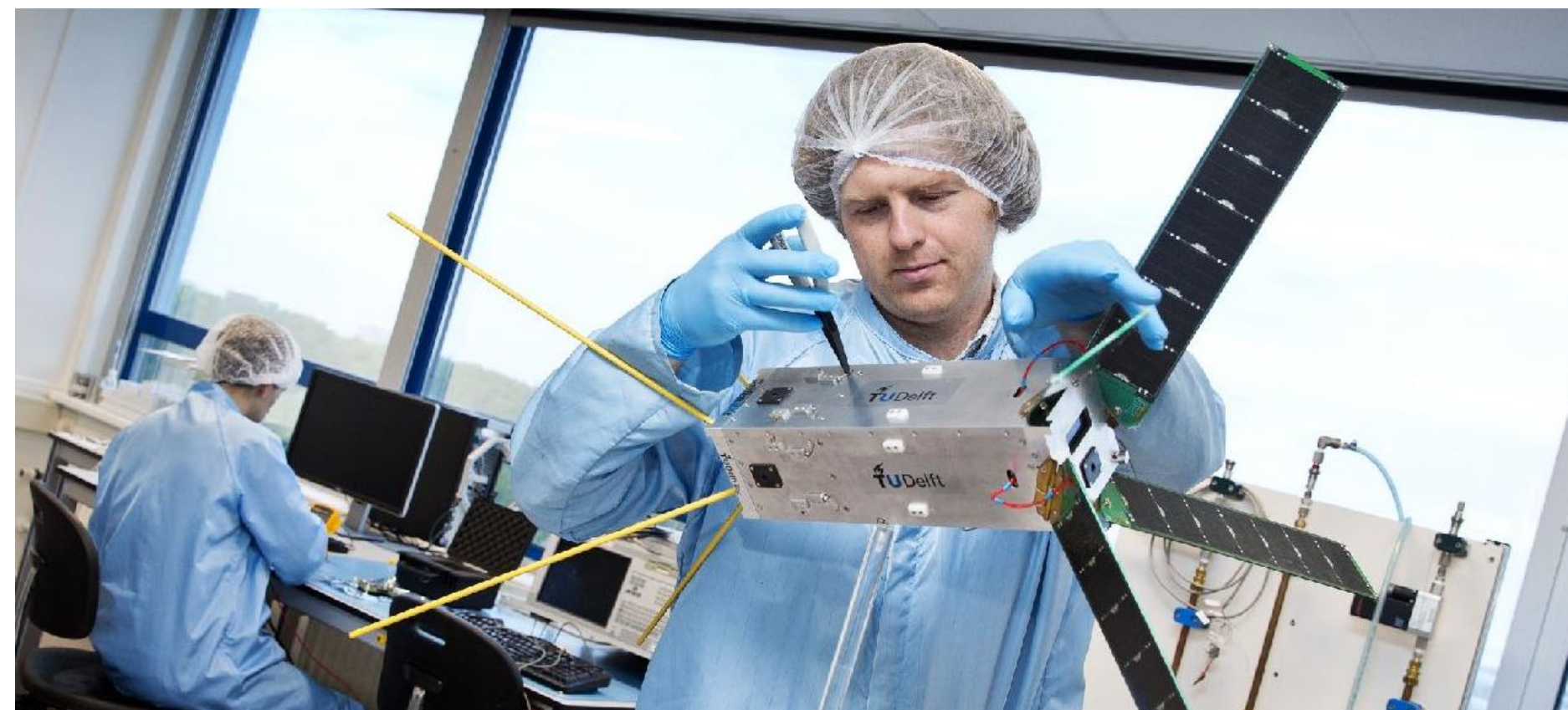
Challenges



Aeronautics: blended wing



Micro air vehicle: Delfly



Space: DeFFi cubesat



Wind energy: wind farms

BSc Programme

$$X(t_0+h) \approx x_0+h\phi$$

$$\Phi_{RK4} = \frac{1}{6} (k_1 + 2k_2 + 2k_3 + k_4)$$

$$k_1 = f(t_0, x_0)$$

$$k_2 = f\left(t_0 + \frac{h}{2}, x_0 + \frac{h}{2}k_1\right)$$

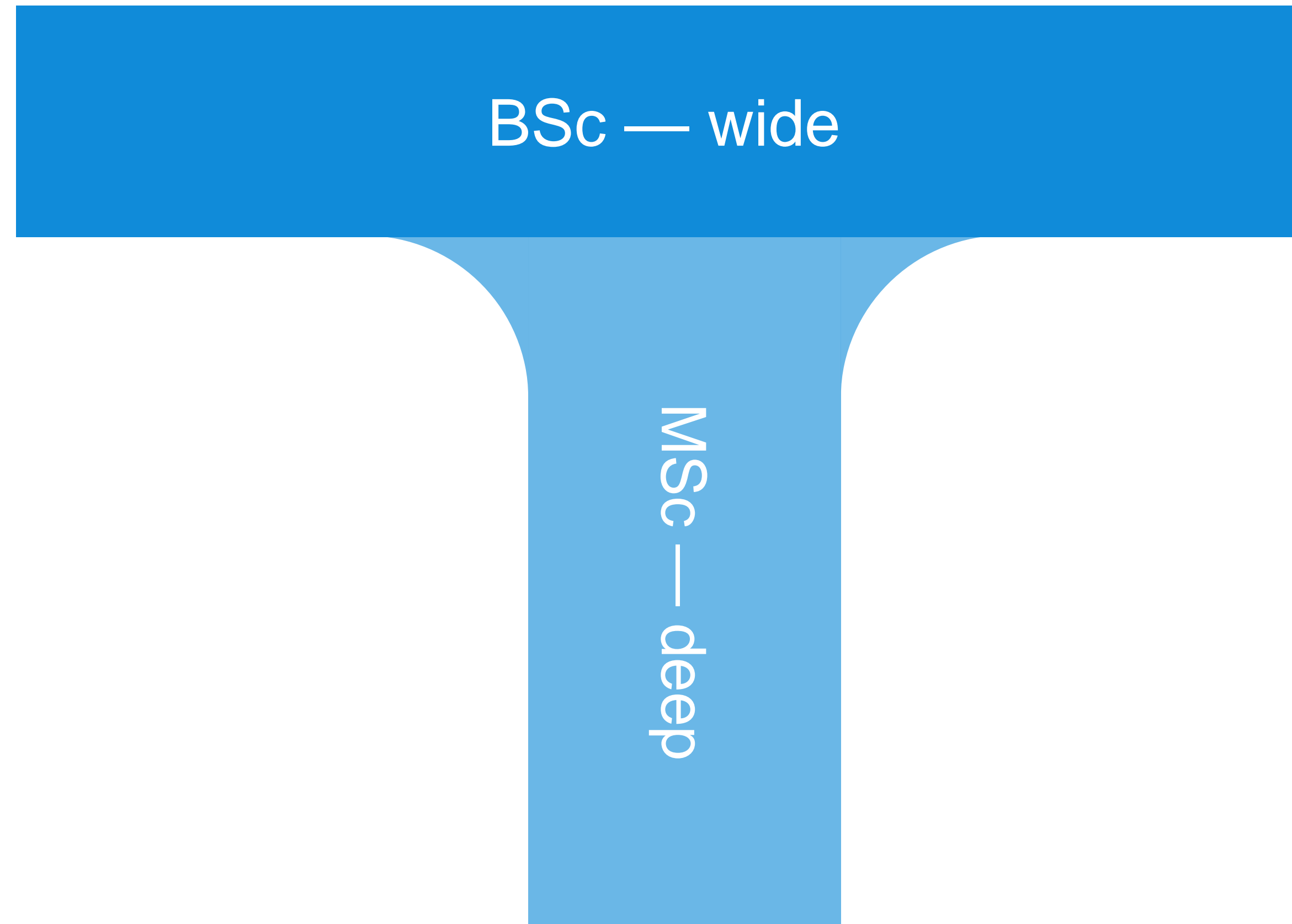
$$k_3 = f\left(t_0 + \frac{h}{2}, x_0 + h k_1\right)$$

$$k_4 = f(t_0 + h, x_0 + h k_1)$$

White Board Marker

What to expect

Apply knowledge in different disciplines



BSc programme Aerospace Engineering

Three-year **BSc**: one common **English** programme

Notable characteristics:

Year 1 **Binding Study Advice** (BSA): obtain 45 of 60 ECTS

Year 2 Regular programme

Year 3 **Minor** (possibility to go abroad)

BSc graduation project: **Design Synthesis Exercise**

Internationally oriented

- Full **English** program (BSc & MSc)
- **2600** students at AE Faculty; **44%** international
- **Internships** abroad, for example:

 United States: Lockheed Martin

 Germany: Airbus

 Australia: Qantas

 Italy: Ferrari

- **Collaboration** with foreign universities
 - France, Germany, Italy, Spain, Norway, UK

Teaching methods

Lectures

- Large groups (300 students)
- Theoretical explanations by professor

Activating education

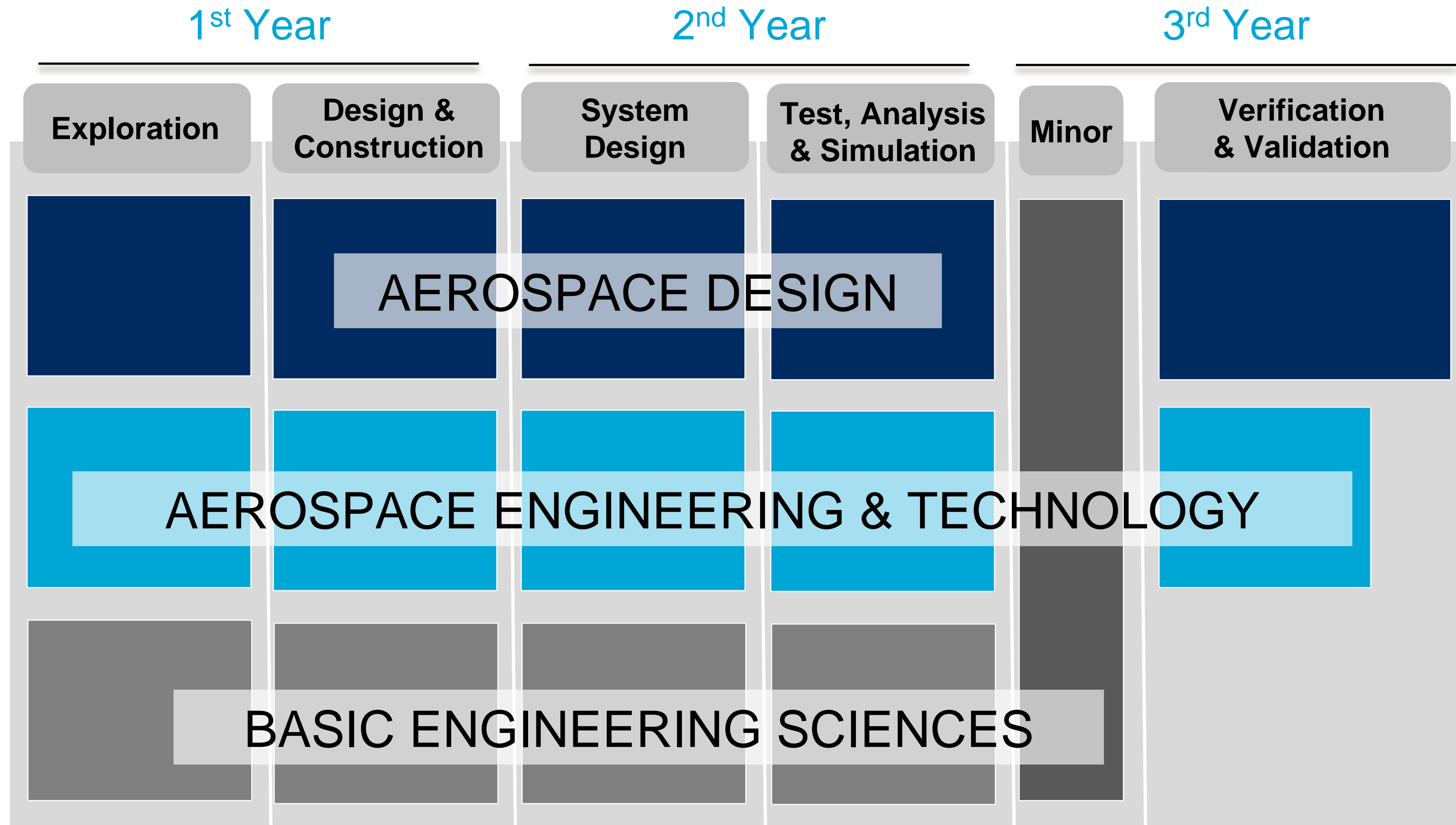
- Smaller groups (40 students)
- Practice with theory
- Led by professor and senior students

Projects

- Smaller groups (10 students)
- Application of theory
- Mentoring by senior students



BSc Curriculum



First Semester

DESIGN

AE1111: Exploring Aerospace Engineering & Design (5EC)

- AE1111-I Exploring AE (3EC)
- AE1111-II Engineering Drawing (2EC)
- AE1111-III Study Skills & Guidance

AEROSPAC

AE1110: Introduction to Aerospace Engineering (9EC)

- AE1110-I Introduction to Aerospace Engineering-I (5EC)
- AE1110-I Introduction to Aerospace Engineering-II (4EC)

BASICS

AE1130: Engineering Mechanics (7EC)

- AE1130-I Statics
- AE1130-II Dynamics

WI1421LR: Calculus-I (6EC)

- WI1421LR-I Calculus I-A
- WI1421LR-I Calculus I-B

AE1108-I: Aerospace Materials & Structures (6EC)

- AE1108-I Aerospace Materials (3EC)
- AE1108-II Aerospace Mechanics of Materials (3EC)

Example: AE1110 – Introduction to AE

Themes

- 16 hr forces, moments, technology
 - lift, gravity, drag, thrust
- 14 hr aerodynamics
- 16 hr flight mechanics
- 14 hr materials and structures
- 20 hr rocket science & orbital mechanics

Teaching methods

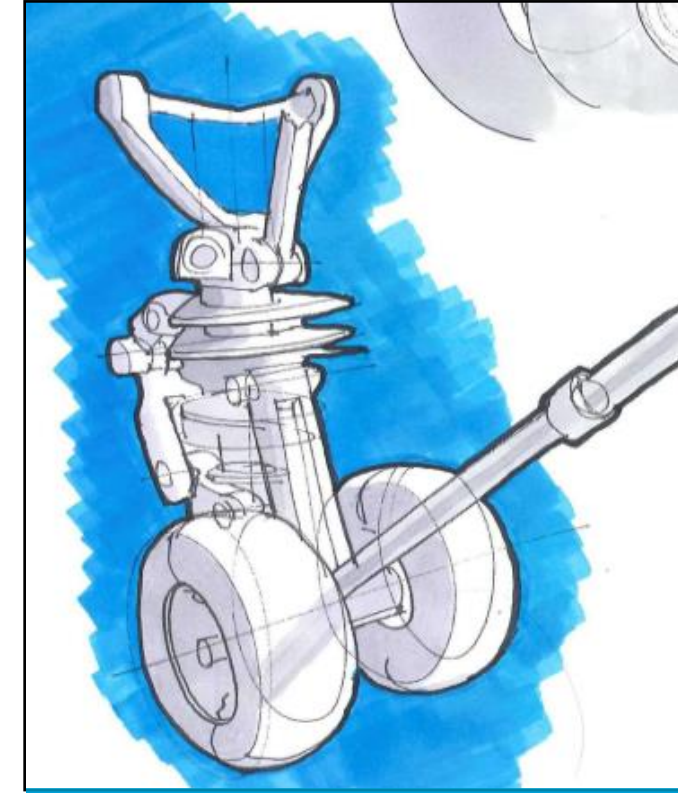
- lectures
- instruction sessions



BSc Projects



Flying Wing



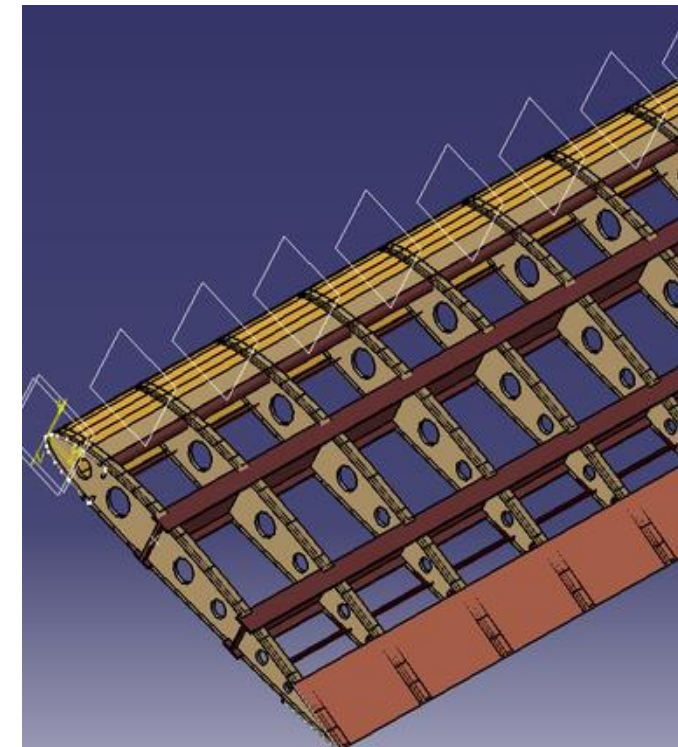
Engineering Drawing



Design & Construction



Flight Practical



System Design



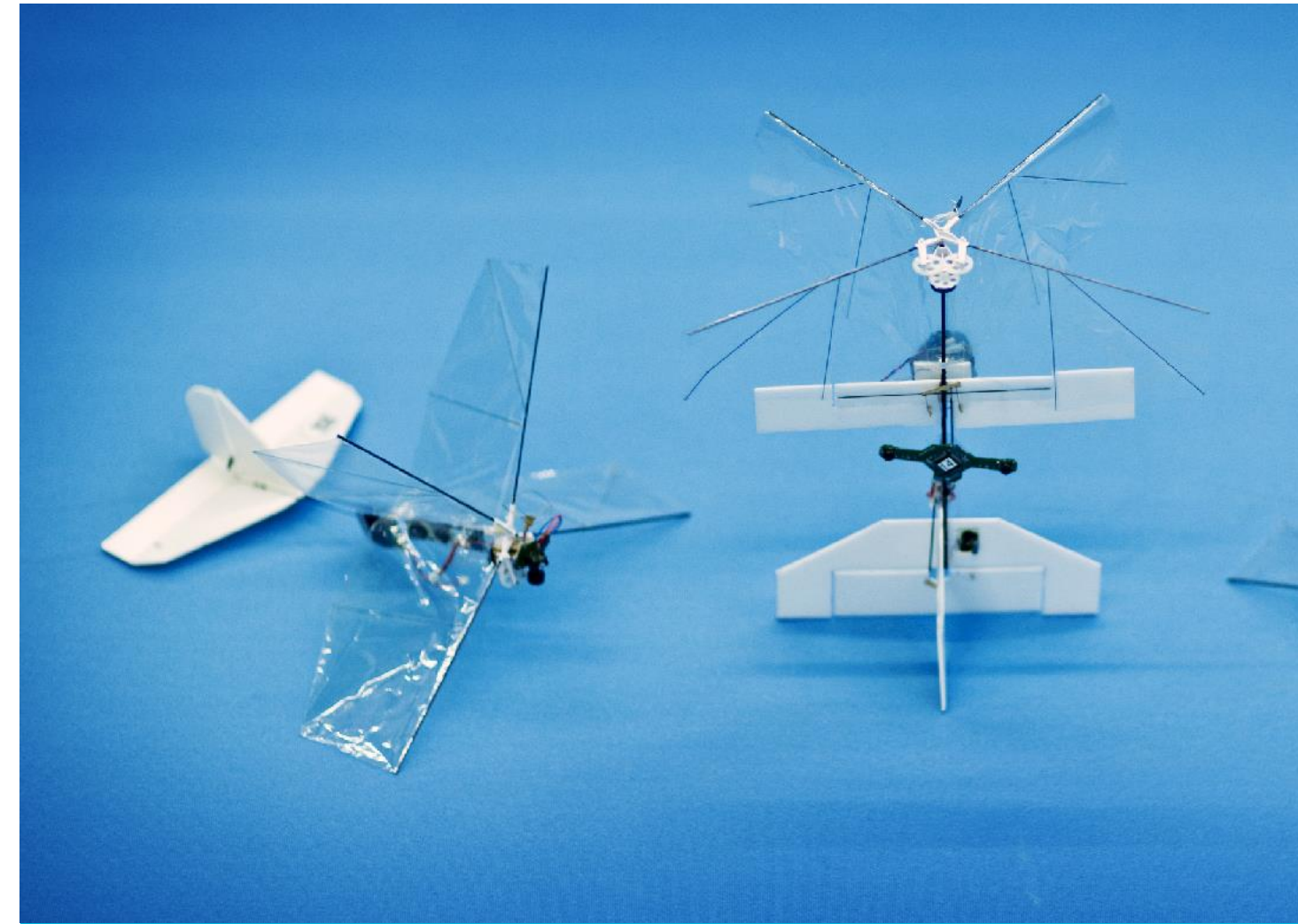
Design Synthesis Exercise

Design Synthesis Exercise (DSE)

10 weeks, 10 people working full-time on one project to gain *'design experience in a realistic environment'*



Euroflyer

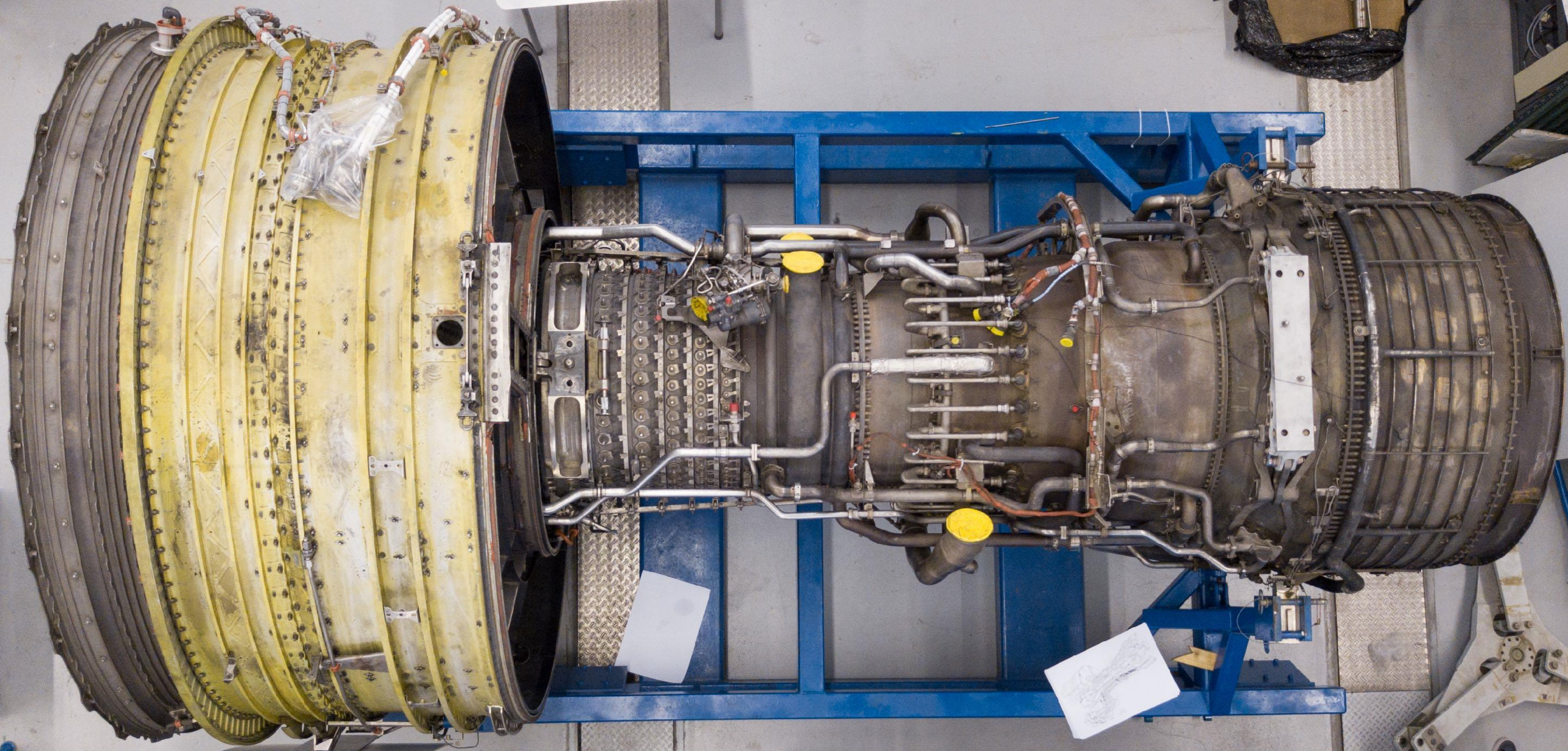


Delfly



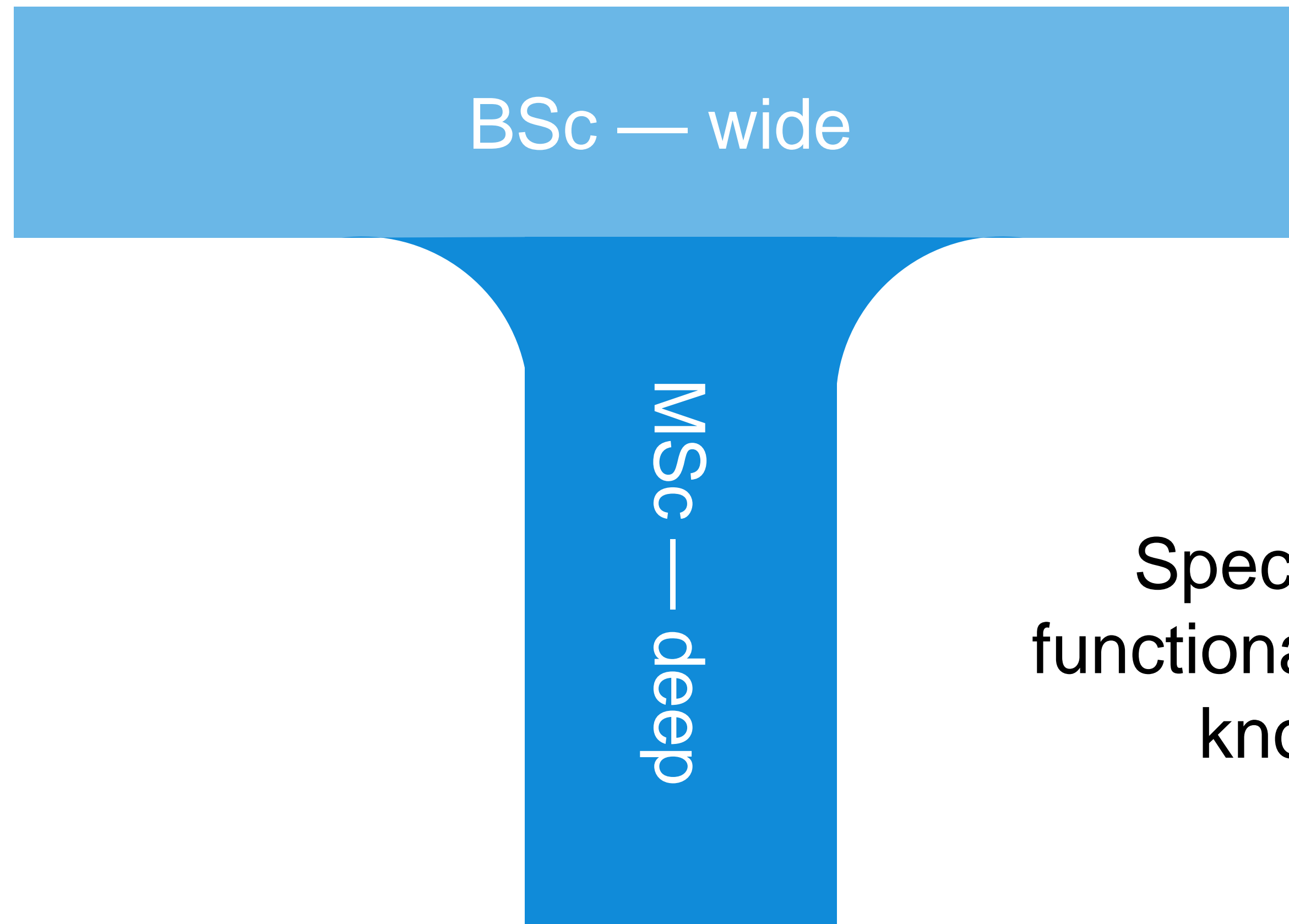
DeFFi

MSc & Career



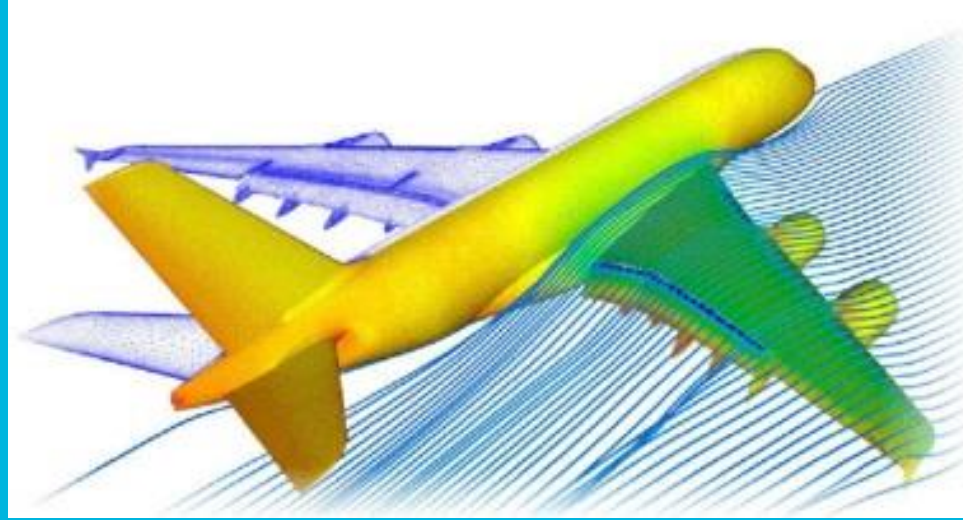
What to expect

Apply knowledge in different disciplines



Specialise with
functional/disciplinary
knowledge

MSc tracks



Aerodynamics
& Wind Energy



Flight Performance &
Propulsion



Control & Operations



Spaceflight



Aerospace Structures
& Materials



European Wind Energy
Master

MSc Aerospace Engineering

European Wind Energy Master

MSc programme

1st Year

Core courses	15 EC
Profile courses	17 EC
Literature study	6–12 EC
Research methodologies	2 EC
Elective courses	17 EC

2nd Year

Internship	18 EC
MSc thesis project	42 EC

Career Prospects

40

%

Aerospace Engineering industry

- aircraft- & component design
- satellite- & rocket industry

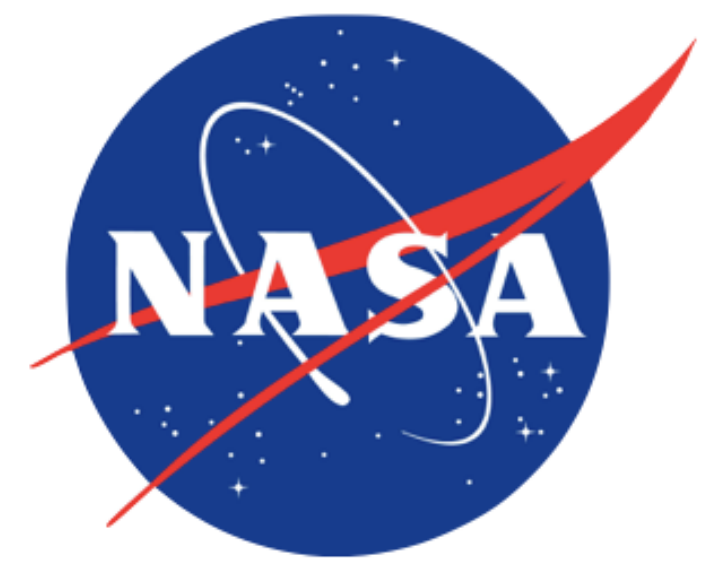
60

%

Other industries

- engineering
- consultancy
- management

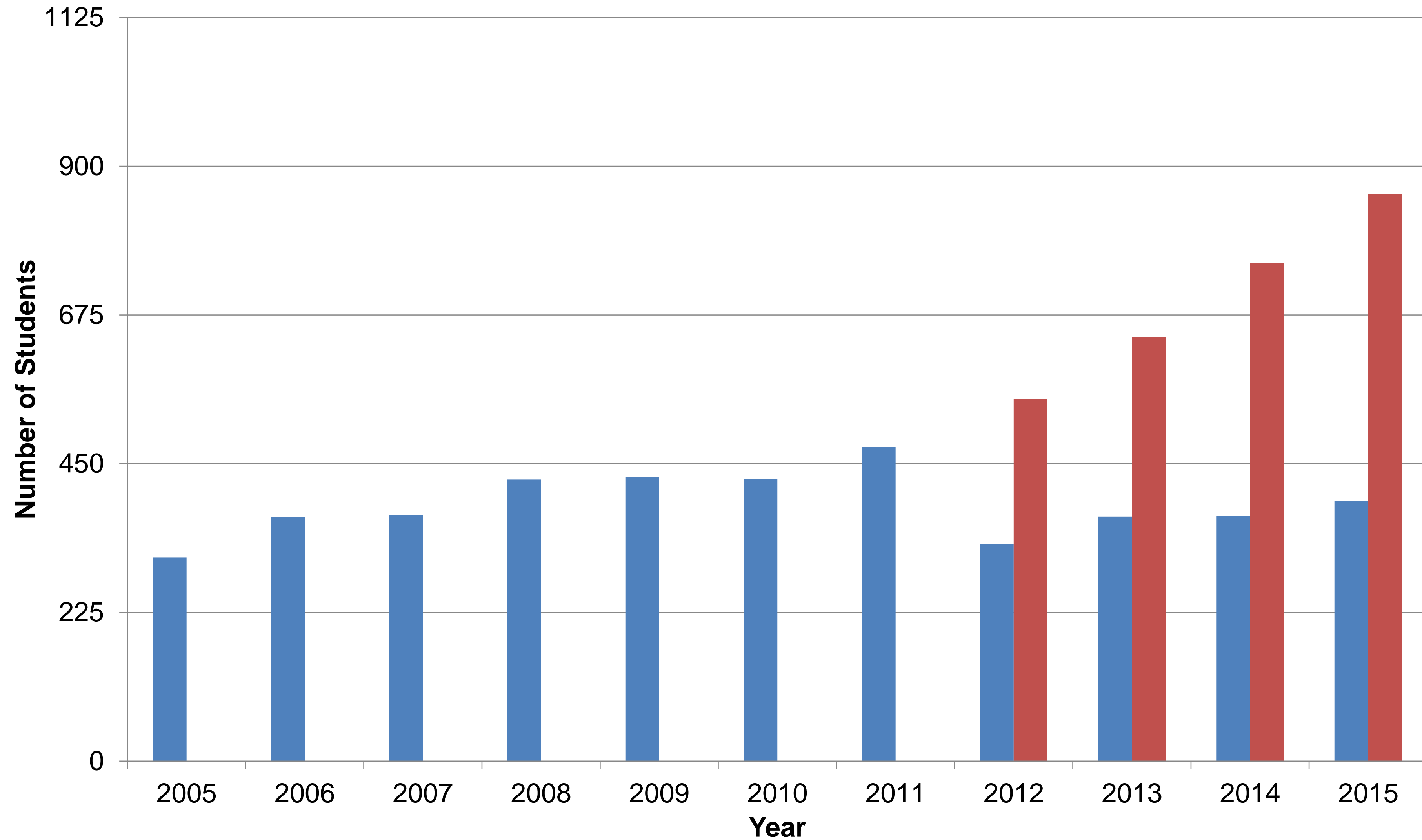
Career Prospects



Are you a future Aerospace Engineer?



Numerus fixus — why?



Admission Requirements

International Baccalaureate

- English, Mathematics HL, Physics HL

German Abitur

- Mathematik, Physik, English

Belgian ASO

- Wiskunde (4), Fysica(1), Engels

UK GCE/A Levels

- At least **6 GCSE certificates** in different subjects. 3 need to be finished on GCE A Levels (grades A*-C)
 - Mathematics A2, Physics A2

Admission Requirements

English language proficiency

- TOEFL iBT 90, IELTS 6.5 overall band score - academic version or Cambridge CPE or CAE
- Exemptions:
- Nationals from USA, UK, Ireland , Australia, New Zealand and Canada
- Applicants with an International Baccalaureate, European Baccalaureate diploma, or European secondary school diploma (pre-university certificate) considered equivalent to the Dutch pre-university education (VWO), with English as a final examination subject. Please note that a 'pass' (sufficient score) for English is required on your secondary school certificate.

APPLY IN STUDIELINK



Register or log on via tudelft.studielink.nl

Fill out your personal and previous education details

Choose enrolment application and register for:
Type of study programme (choose BSc)
Educational institution (Delft University of Technology)
Study programme name (choose your BSc programme)

Application deadlines BSc programmes
15 Januari Numerus Fixus programmes
1 May For programme choice check
1 September All other programmes

ACTIVATE NETID



You will receive the following by e-mail:
Confirmation of your application in Studielink
Your TU Delft NetID (username) and TU Delft e-mail address
An invitation for the TU Delft registration system Osiris

Activate your NetID to log on to all TU Delft systems

Upload your passport photo at e-service.tudelft.nl

CONTINUE IN OSIRIS



Log into Osiris via osiaan.tudelft.nl

Answer the questions and upload the required documents

Check the progress of your application regularly

REGISTRATION



Bring your official documents (see Delftulip) to the Introduction Programme in order to be officially registered as a TU Delft student.

You are officially registered as soon as your status in Studielink says 'enrolled'.

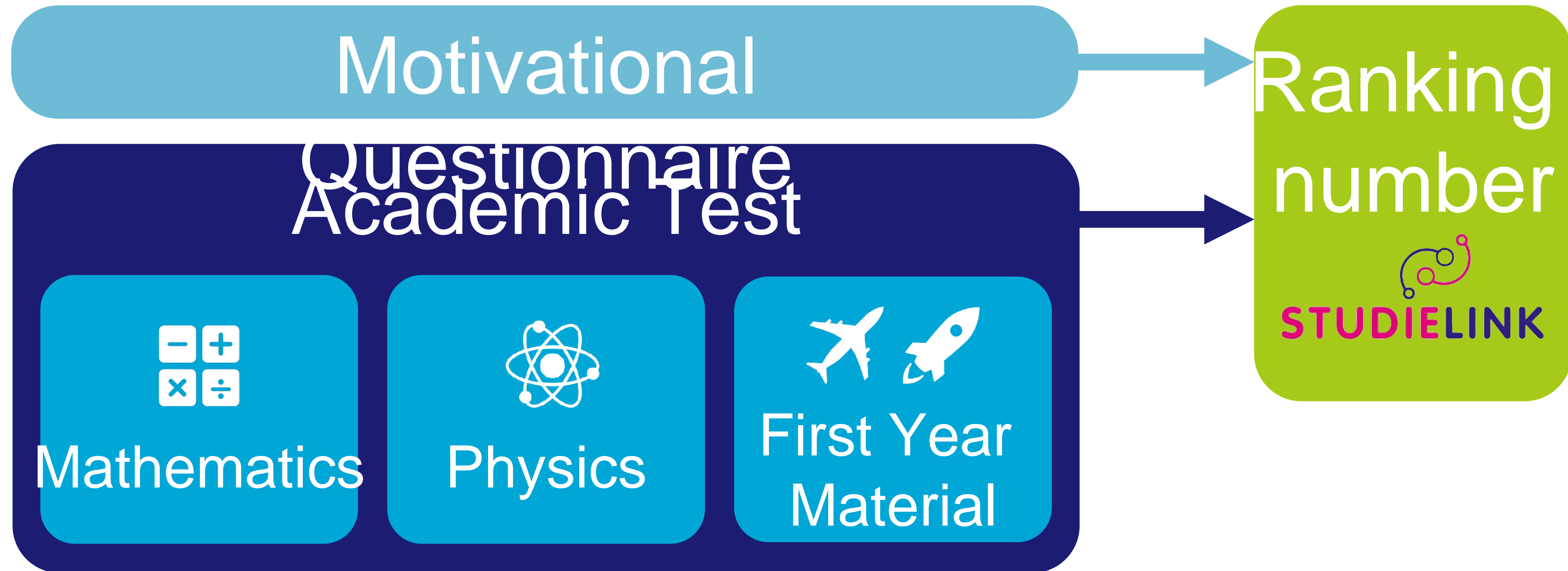
When your enrolment is complete, you can download your Proof of Enrolment via Osiris

AE Selection
procedure

Selection Procedure

Selection based on two main criteria:

Motivation and Academic Performance



Visit us at college fairs, open days and orientation days.
Studielink registration open from October onwards

• **January 15th** Registration deadline

Do the mini-MOOC, an online introduction course, to get acquainted with the first year material.

• **January 31st** Deadline mini-MOOC

Work on the Questionnaire on Motivation and Academic Attitude.

• **February 28th** Deadline Questionnaire Motivation & Academic Attitude

Work on the three part academic test and write a reflection on your application procedure.

• **March 26th** Deadline Academic Test

Answer self-reflection questions (before March 31st)
Wait for your ranking number

• **April 15th** Receive ranking number

Life of an Aerospace student



Daily Schedule – Lecture period

	ma 25	di 26	wo 27	do 28	vr 29	za 30	zo 1
all-day							
09:00	08:45 Engineering Drawing	08:45 Calculus I	08:45 Dynamics	08:45 Exploring Aerospace Engineering	08:45 Introduction to Aerospace Engineering II LR-CZ A		
10:00							
11:00		10:45 Self Study	10:45 Aerospace Materials		10:45 Dynamics	10:45 Self Study	
12:00							
13:00							
14:00	13:45 Aerospace Materials	13:45 Self Study	13:45 Dynamics LR-CZ J	13:45 Calculus I	13:45 Exploring Aerospace Engineering		
15:00							
16:00	15:45 Introduction to Aerospace Engineering II			15:45 Self Study			
17:00							
18:00							
19:00	18:45 Sport	18:45 Self Study	18:45 Dynamics Test		18:45 Sport		
20:00							

Daily Schedule – White Week

	ma 8	di 9	wo 10	do 11	vr 12	za 13	zo 14
all-day		📅 Jannes Craens'...					
09:00							
10:00	9:30 Self Study	9:30 Self Study	9:30 Self Study	9:30 Self Study	9:30 Self Study	9:30 Self Study	9:30 Self Study
11:00							
12:00							
13:00							
14:00	14:00 Self Study	14:00 Self Study	14:00 Self Study	14:00 Self Study	14:00 Self Study	14:00 Self Study	14:00 Self Study
15:00							
16:00							
17:00							
18:00							
19:00	18:45 Sport			18:45 Sport			
20:00							

Daily Schedule – Exam Week

	ma 15	di 16	wo 17	do 18	vr 19	za 20	zo 21
all-day							Vaderdag
09:00		09:00 Exam Introduction to Aerospace Engineering					
10:00	9:30 Self Study		9:30 Self Study	9:30 Self Study			
11:00							
12:00							
13:00							
14:00	14:00 Self Study		14:00 Self Study	14:00 Self Study	14:00 Exam Statics		
15:00							
16:00							
17:00							
18:00							
19:00	18:45 Sport			18:45 Sport			
20:00							

Study Associations

Society of Aerospace Engineering Students (VSV) 'Leonardo da Vinci'



Board functions



Excursions



VSV Airshow



Freshmen weekend

Study Associations

EUROAVIA

'The European Association of Aerospace Students'



SSVOBB

'Stichting Studenten Vliegtuig- Ontwikkeling Lambach Vliegtuig'



DARE

'Student Rocketry Association'



Dream Teams (Student Projects)



Nuon Solar Team



Ecorunner



Formula Zero



Novabike



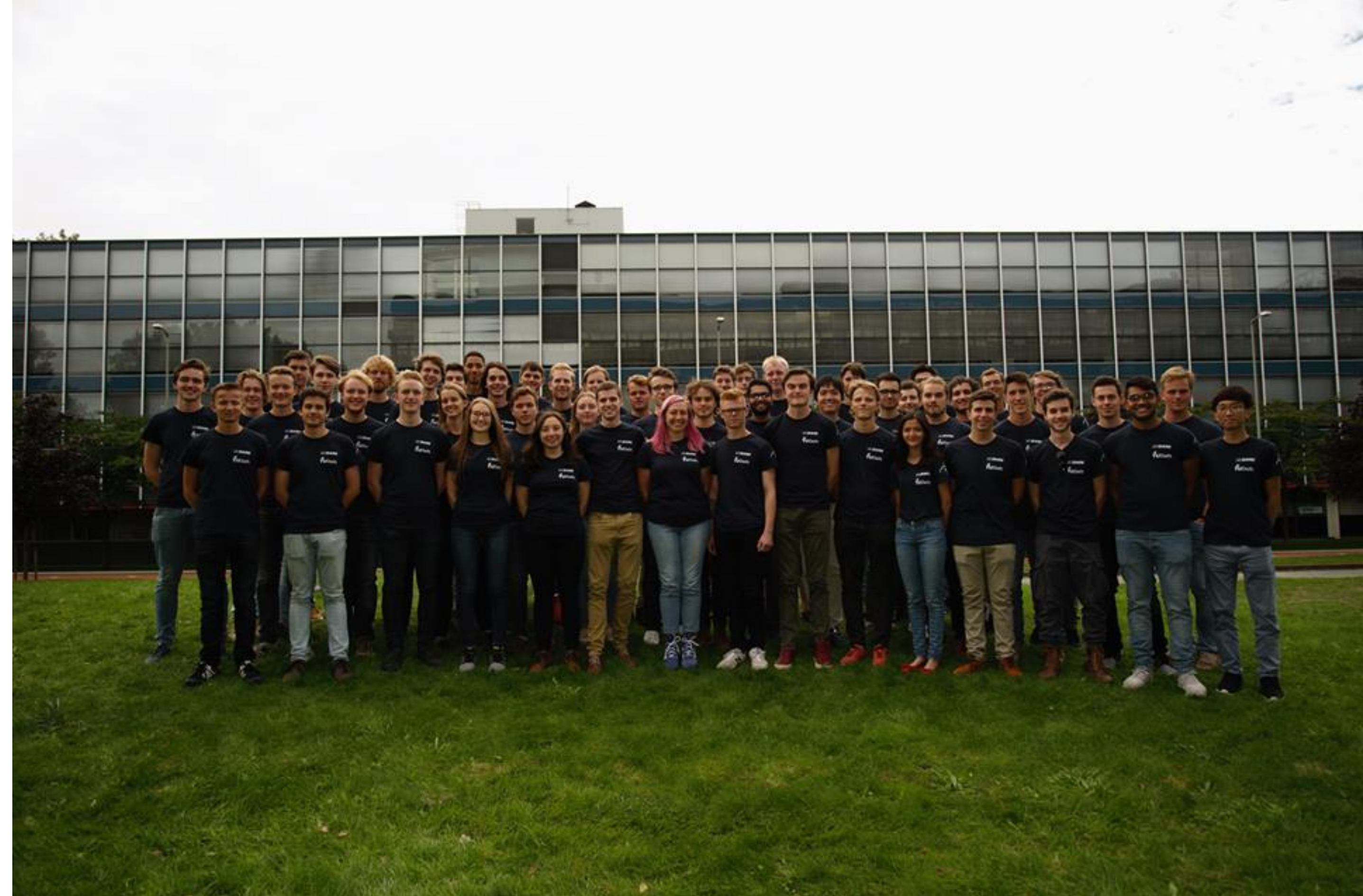
DUT Racing Team



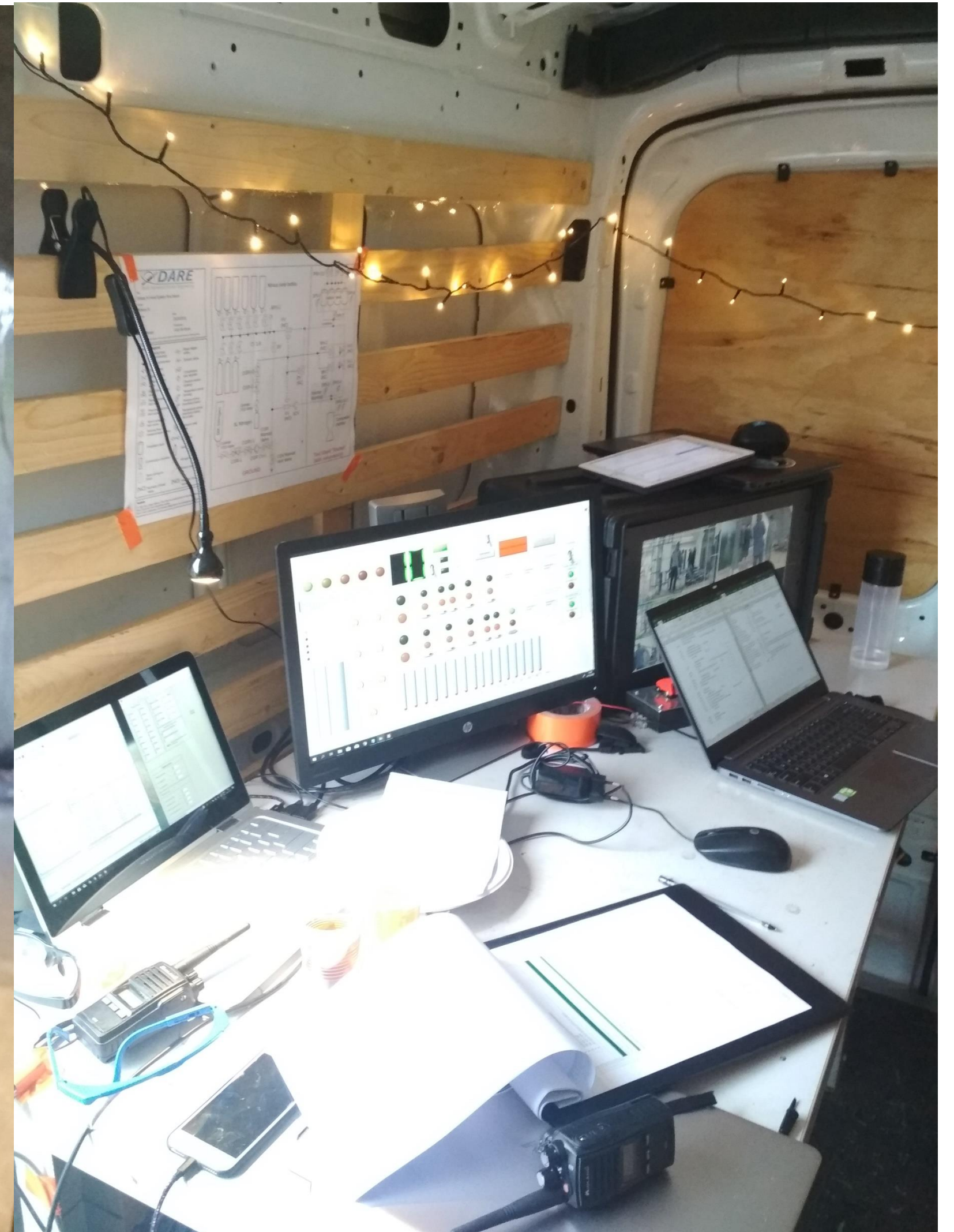
Human Power Team

DARE

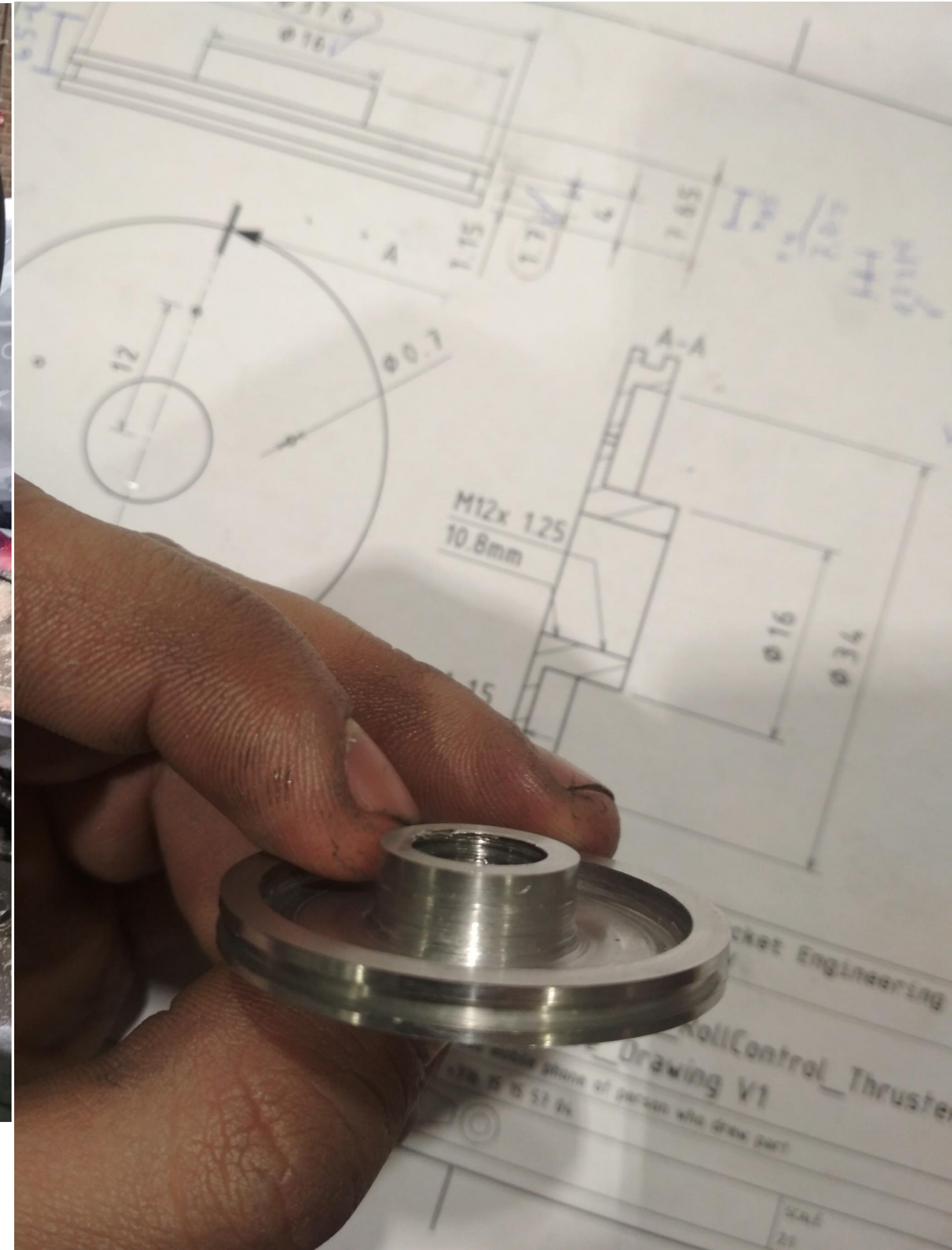
- Delft
- Aerospace
- Rocket
- Engineering



DARE



DARE



Closing



Why TU Delft Aerospace Engineering?

- If you think aerospace is a ***fascinating topic*** to study.
- If you like solving challenging ***maths & physics*** problems
- If you're ***simply curious***
- If you want an ***internationally oriented*** education
- If you the combination of ***theory and practice*** appeals to you
- Or if you want a high quality MSc degree in engineering, which gives you opportunity for an ***international career***

Events

Mini-MOOC

Testing of knowledge

Mandatory part of selection procedure

International Open Days

November 23rd, December 8th

Tour of the faculty

Available on request

Contact Information



+31 (0)15 278 7192



Study-AE@tudelft.nl
www.ae.tudelft.nl



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