

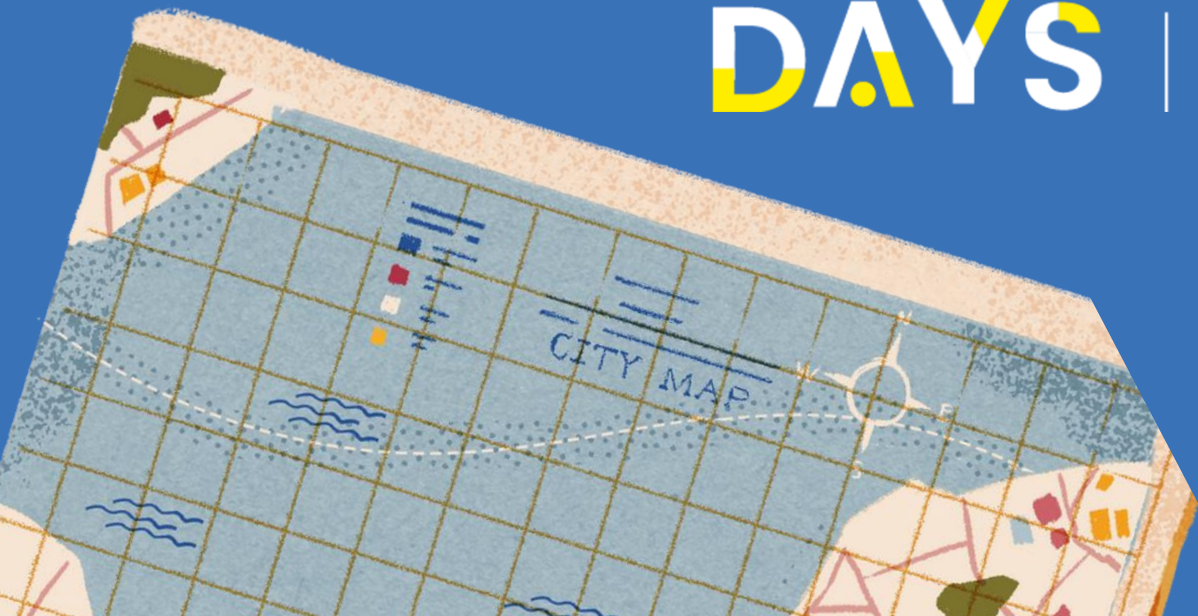


Membrane Engineering for Sustainable Development

Membrane Engineering for Sustainable Development, MESD Erasmus Mundus Joint Master

#ERASMUS DAYS

14 > 19
of October
2024



Funded by the European Union



LUND UNIVERSITY



Ready to embark on a journey
that will shape the future of
sustainable development while
immersing yourself in
European culture?

NEXT STOPS

- ✓ The MESD program
- ✓ The TRACKS
- ✓ Travel HACKS
- ✓ The destinations
- ✓ Explore work opportunities
- ✓ Souvenirs
- ✓ The MESD adventurous travelers



#ERASMUS
DAYS



MESD
Membrane engineering for
Sustainable Development



Funded by
the European Union

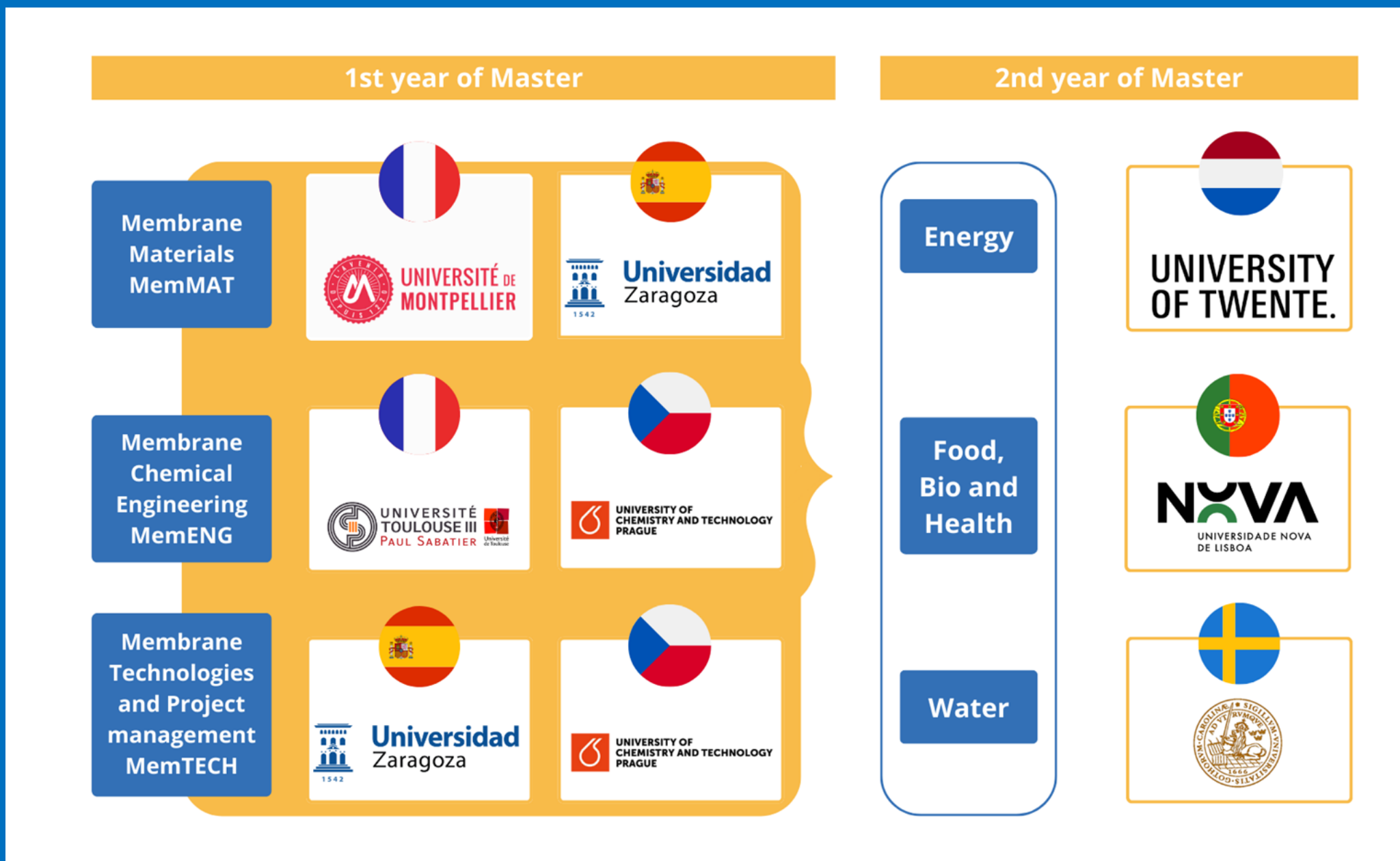
The MESD program





**Join the MESD
journey!**

**Study in three EU countries,
gaining global skills to
transform industries and
tackle sustainability
challenges through
membrane applications**

- Learning about science from the perspective of different countries
- Getting experiences in both the academic and industrial settings
- Broad network of associated partners

The MESD program



-  **9 different track combinations**
-  **6 countries involved**
-  **2 summer schools**
-  **2 internships** (one optional summer internship and a 6-month internship)

1st year of the Master → Gain foundational knowledge and skills in your chosen track.
2nd year of the Master → Dive into membrane applications, tailored to specific fields, and begin your professional career with the Master's thesis and internship.

MESD
Membrane Engineering for Sustainable Development

A map of Europe is shown with flags indicating the countries involved in the program: Portugal, Spain, France, Netherlands, Czech Republic, and Finland.

The tracks

The MESD program combines the strengths of its partners, providing a solid foundation in membrane engineering while allowing to specialize in your chosen field.

Year 1

- ▷▷ Membrane Materials - MemMAT
- ▷▷ Membrane Engineering - MemENG
- ▷▷ Membrane Technologies and Project Management - MemTECH

Year 2

- ▷▷ Energy
- ▷▷ Food, bio and Health
- ▷▷ Water



Membrane Materials Track focuses on material properties and characterization

1st semester



Intensive (lots of in-person classes and exams) – **don't put studying off!**



Mostly theory-based – **you will get a solid background in membrane design and applications**



Group-oriented – **you will have many opportunities for teamwork**

2nd semester



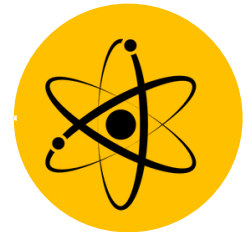
Practice-based – **you will have many lab sessions and a small research project**



Individual work-oriented – **you will mostly complete reports and assignments on your own**

Membrane Chemical Engineering emphasizes chemical processes using membranes

1st semester



Scientific concepts

you will have to read and spend more time.



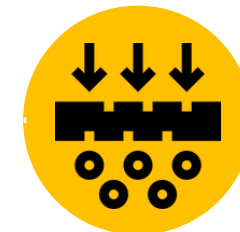
Introductory level

you will get a to know how membrane behave and some theory and labs about membrane processes.



Creative teamwork you will get the chance to work with your team to develop new project ideas.

2nd semester



Membrane Applications – you will study membrane processes deeply & solve its problems using paper or software.



Human Recourse Management – you will be able to learn new skill on how to work and interact with the surrounding environment.



Membrane Technologies and Project Management balances project management and membrane engineering to address industry needs



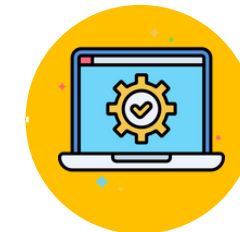
**Hands-on Project Experience
and Business Development**



**Independent & Team
Assignments**



**Dedicated Study & Classroom
Engagement**



**Practical Use of Aspen Plus and
Matlab**



**Practical Use of MS Project, SimaPro,
and MS Teams**



Intensive Lab Work & Report Writing



Teamwork



Industry Field Trip

Chemical engineering separation processes for energy field



Comprehensive Curriculum: Combines membrane applications for energy (gas separations, plant design) with chemical engineering separation processes.



Industry-Relevant Topics: External lectures and seminars cover advanced subjects like fuel cells, electrolysers, and electromembrane processes.



Sustainable Energy Focus: Includes seminars on advanced topics like fuel cells, CO₂ extraction, and energy production from biomass.



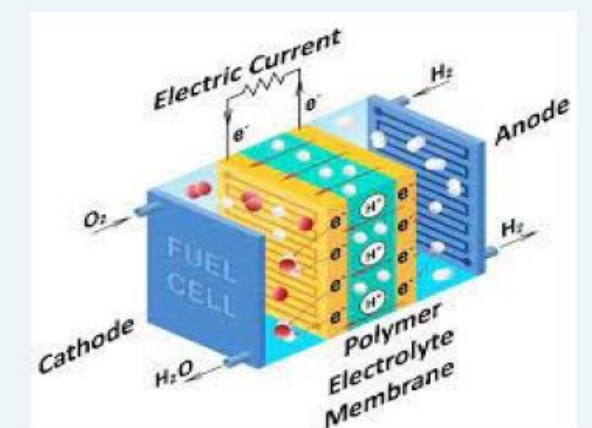
CO₂ Capture



Reduced Energy Use



Industry electrification



Energy storage

Entrepreneurship and innovation applied to membrane applications in food, biorefining, pharmaceuticals, and biomedicine



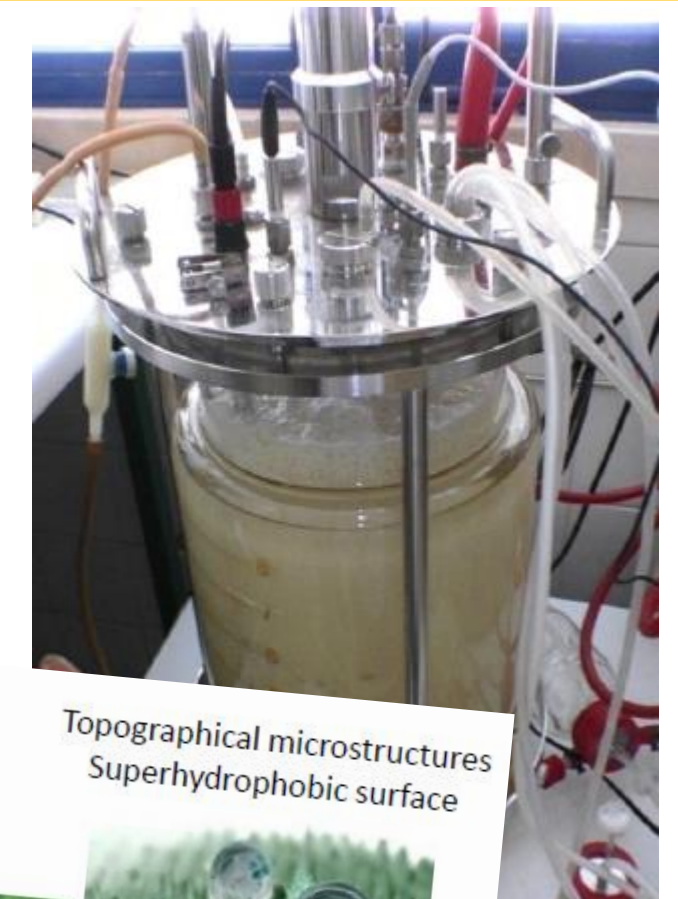
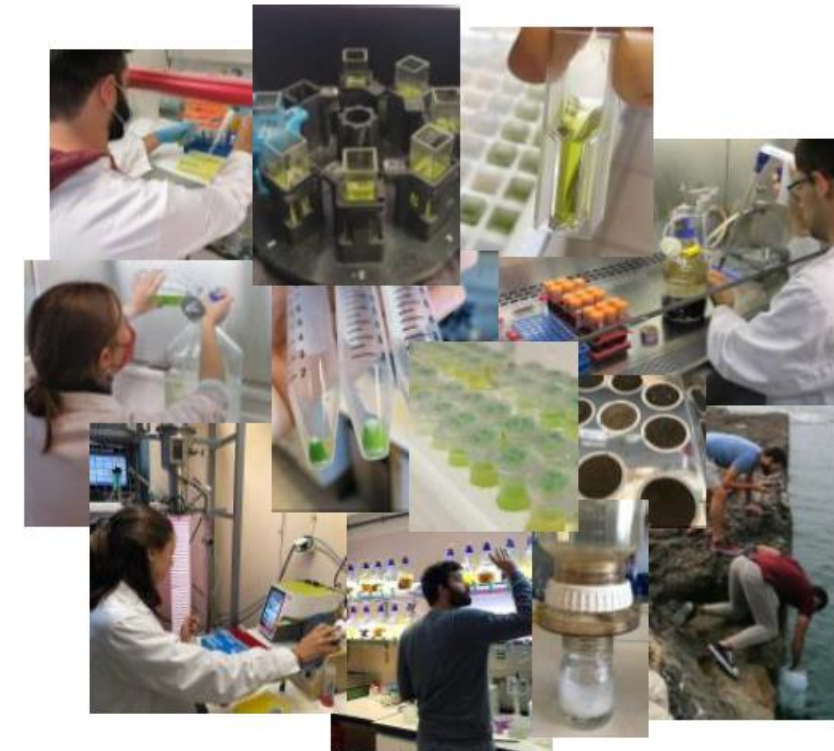
Balanced Curriculum: Combines technical courses on membrane applications with entrepreneurship and innovation projects.



Diverse Applications: Focuses on membrane processes in food, beverage, biorefining, pharmaceuticals, and medical fields.



Practical Experience: Includes individual and team projects to evaluate the sustainability and financial aspects of membrane processes.



Topographical microstructures
Superhydrophobic surface



Water



LUNDS UNIVERSITET

Membranes for water resources management: drinking, reused, and rain water



Hands-On Learning: A dynamic blend of theoretical lectures and real-world case studies, providing both comprehensive knowledge and practical skills.



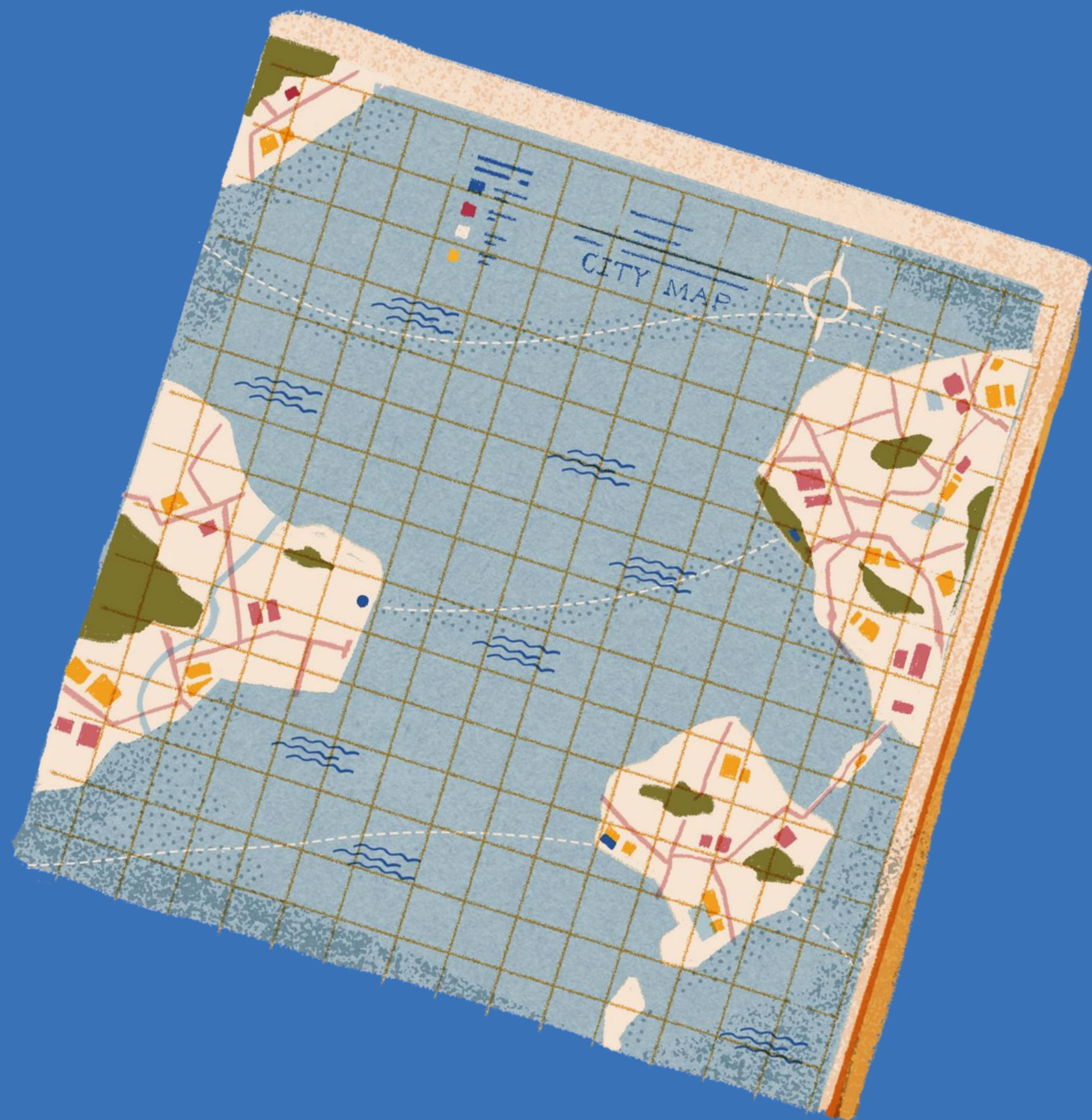
Industry Collaboration: Close partnerships with Swedish companies, with industries specializing in membrane processes proposing real-world assignments for students.



Tackling Global Challenges: An emphasis on resource reuse and innovative water treatment solutions, addressing key global issues in water management



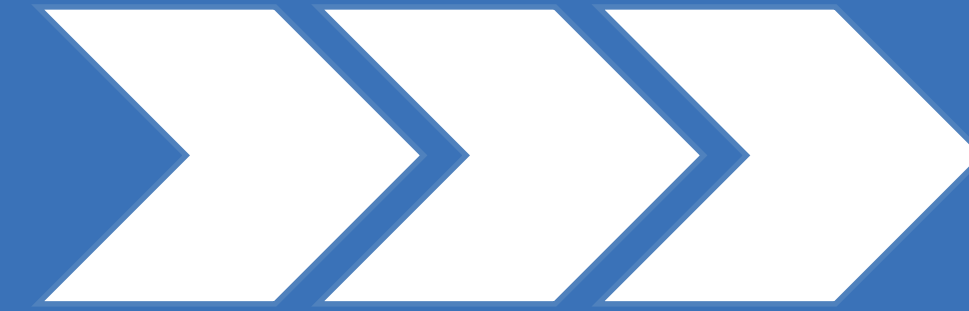
TRAVEL HACKS



Travel is full of surprises!

Here's some advice to make
your journey easier

“Mind the gap”



Language barrier

Cultural adaptation

Integration with local students

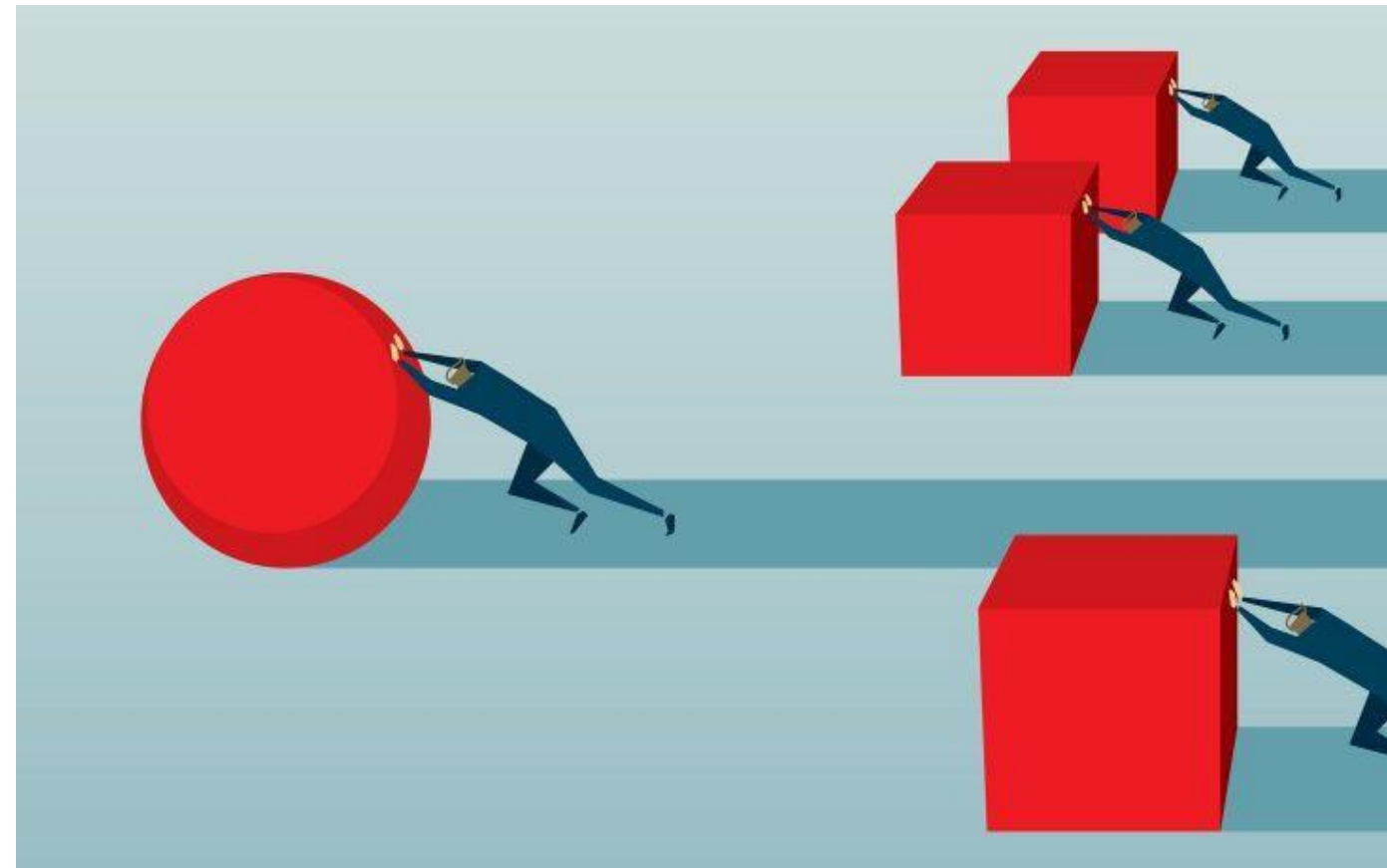
Academic system differences

Financial management

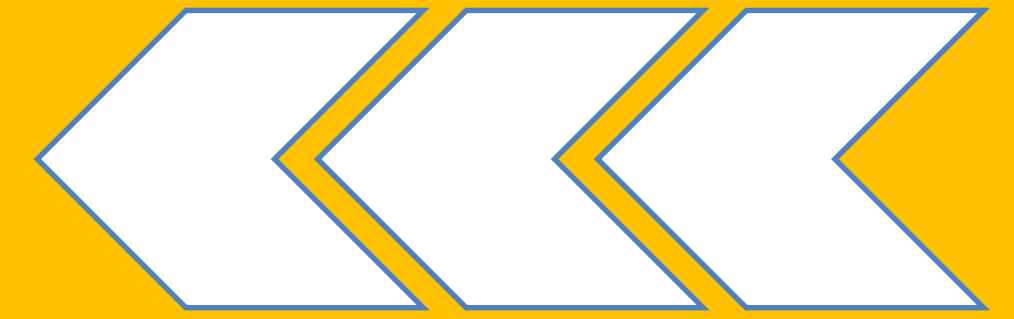
Weather and seasonal changes

Homesickness and loneliness

Accommodation issues



Navigating the challenges



Local language courses

Participating in ESN or other student organized events and mentor programs

Getting in touch with local students/asking for help to professors and local offices



Taking time to learn how to budget (scholarship = 1400€/month)

Buy local clothing and layer up
Adjust your routine to maximize daylight.
Don't worry, you'll adapt soon enough!

Staying in touch with people back home/making time to spend with friends

Traveling to nearby cities or countries to cool off a bit

Asking local people how to find a place to live

Urban adventure

The bus ride almost missed

To travel from Zaragoza to Montpellier for the Summer School, I decided to take a night bus. I was patiently waiting at the right platform, watching the screen that showed my route. Five minutes before the bus was due, I went to the bathroom.



When I returned, the route was no longer on the screen, and a different bus was announced. I asked people around, and they said they thought they saw a bus leave quickly. I assumed I had missed mine, so I rushed to buy another ticket. Right after I did, my original bus arrived.

Moral of the story:

Use the bus app to track it, even if it doesn't appear on the station screens, it might just be late.

Urban adventure

Summer challenge:
13 countries in one month!

Summer!!! The best time for a trip

Be mindful of your backpack:
Keep it simple! Remember, you'll be walking a lot to experience the real adventure.

Looking for a budget-friendly trip?

- ✓ No need for fancy clothes, shoes, or extra gadgets like laptops.
- ✓ Pack essentials: water bottle, cap, first aid kit, power bank, sunglasses, etc.
- ✓ Don't forget a good pair of shoes, comfortable t-shirts, and pants suited to the length of your stay.

- ✓ Buy your tickets ASAP.
- ✓ Stay at youth hostels for affordable accommodations.
- ✓ Avoid fancy food or expensive rides—stick to the basics.
- ✓ ALWAYS have a "Plan B" for longer trips.

Watch a YouTube blog to get better idea about the place

Don't Forget to use student ID to get Discount



Gracias-MESD and EU



Travelers Tips

✓ Look for flight, train, and bus discounts: Save money by booking early and using student discounts

✓ Avoid shopping near tourist sites: Not only are prices inflated, but you can also experience local culture better by visiting authentic markets or smaller shops.

✓ Buy local shoes in Europe: European footwear is designed for long walks on cobblestone streets—ideal for those academic trips or historical city tours

✓ Travel in groups to reduce costs: Whether for accommodation or transport, splitting costs with fellow students makes your trip more budget-friendly. Plus, it's a great opportunity for networking!

✓ In many European cities, there are free museum days and cultural exhibitions—don't miss them!

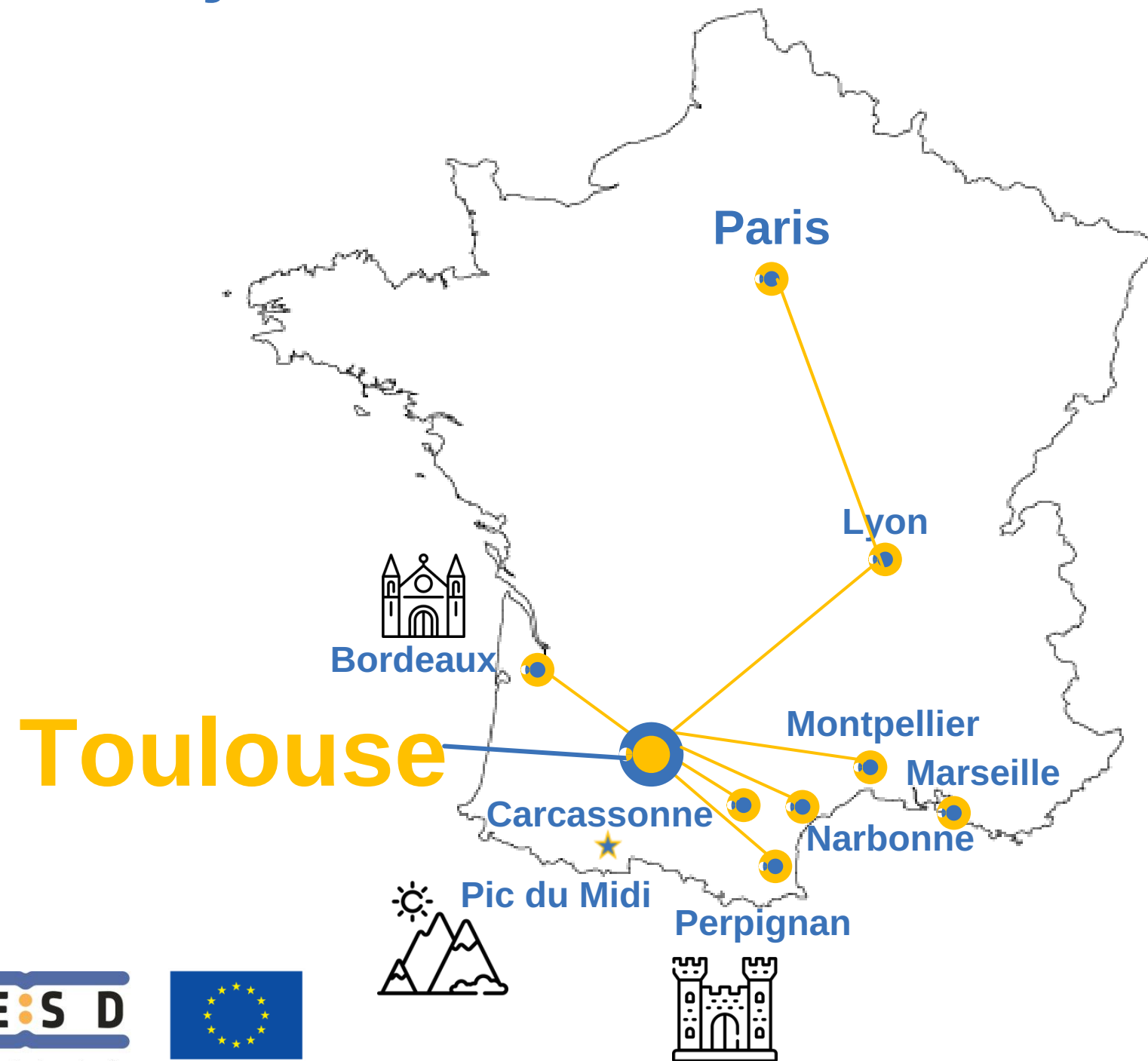
The destinations



- 🌍 Toulouse and Montpellier, France
- 🌍 Zaragoza, Spain
- 🌍 Prague, Czech republic
- 🌍 Enschede, The Netherlands
- 🌍 Lisboa, Portugal
- 🌍 Lund, Sweeden

Toulouse and Montpellier, France

Where you can travel to from...



Cultural immersion in FRANCE



Light shows



Farmers markets



Christmas festivities

Zaragoza, Spain

International Trips

- Southern France
- Portugal
- Andorra
- Italy
- Germany
- Belgium

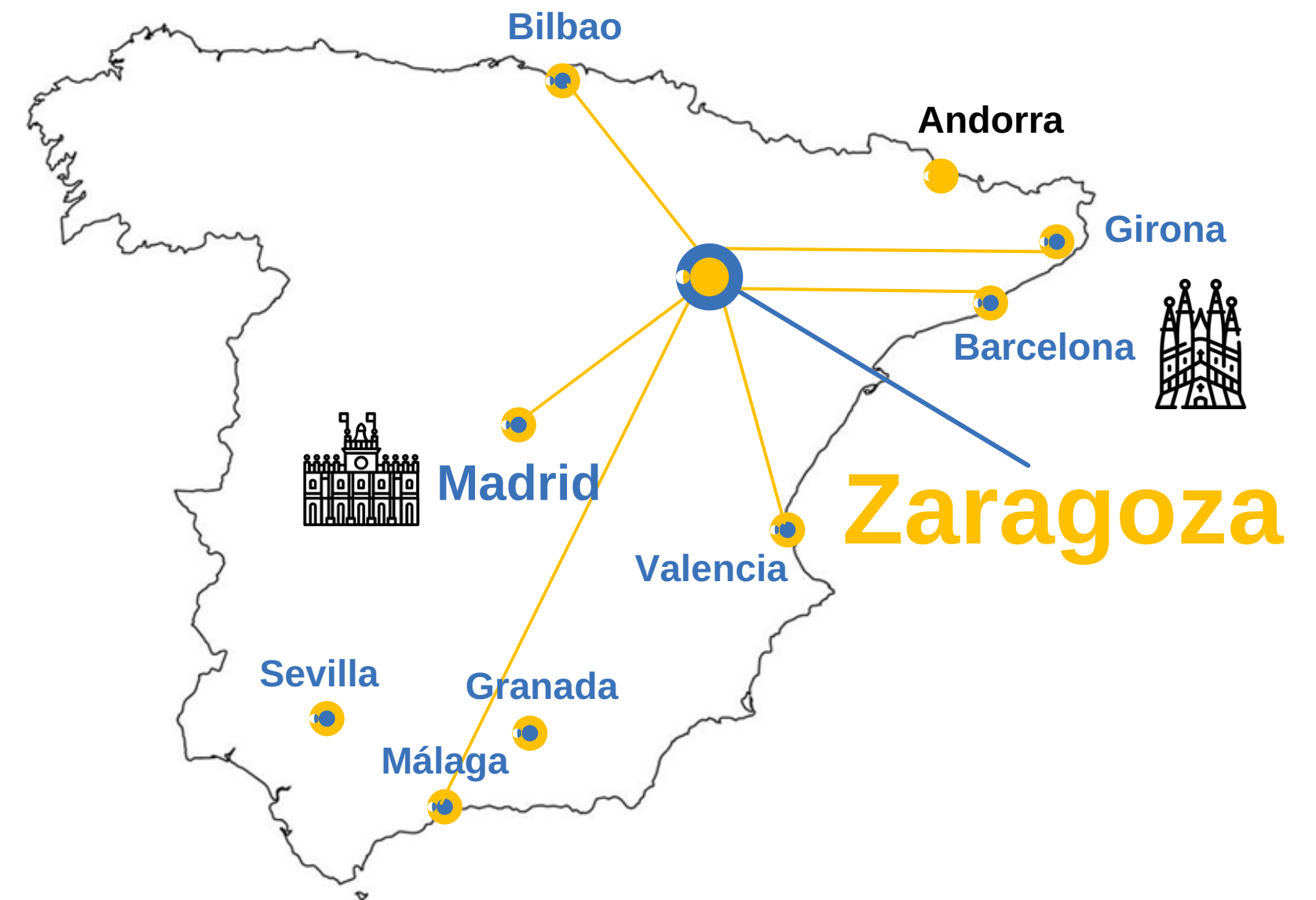


In/Around Zaragoza

- El Pilar Basilica
- Aljafería Palace
- Parque Grande José Antonio Labordeta
- Huesca
- Teruel
- Monasterio de Piedra

Outside Zaragoza

- Barcelona
- Madrid
- Valencia
- Bilbao
- San Sebastián
- Andalusia



Cultural immersion in SPAIN

Festivals calendar

- # Fiestas del Pilar & National Day of Spain - (October 12th)
- # All Saints' Day - (November 1)
- # Zaragoza Jazz Festival - Usually in November
- # Christmas Season
- # New year eve (Nochevieja) - (December 31st)
- # Fiesta de San Valero - (January 29th)



Cultural immersion in SPAIN

Festivals

➤ Fiestas del Pilar & National Day of Spain 2024 - (October 12th)



Offering of flowers



My favorites things



"Pregón"

Concerts



"Cachirulo"



Tradicional dresses



Food Trucks

Cultural immersion in SPAIN

Nature



My favorites things



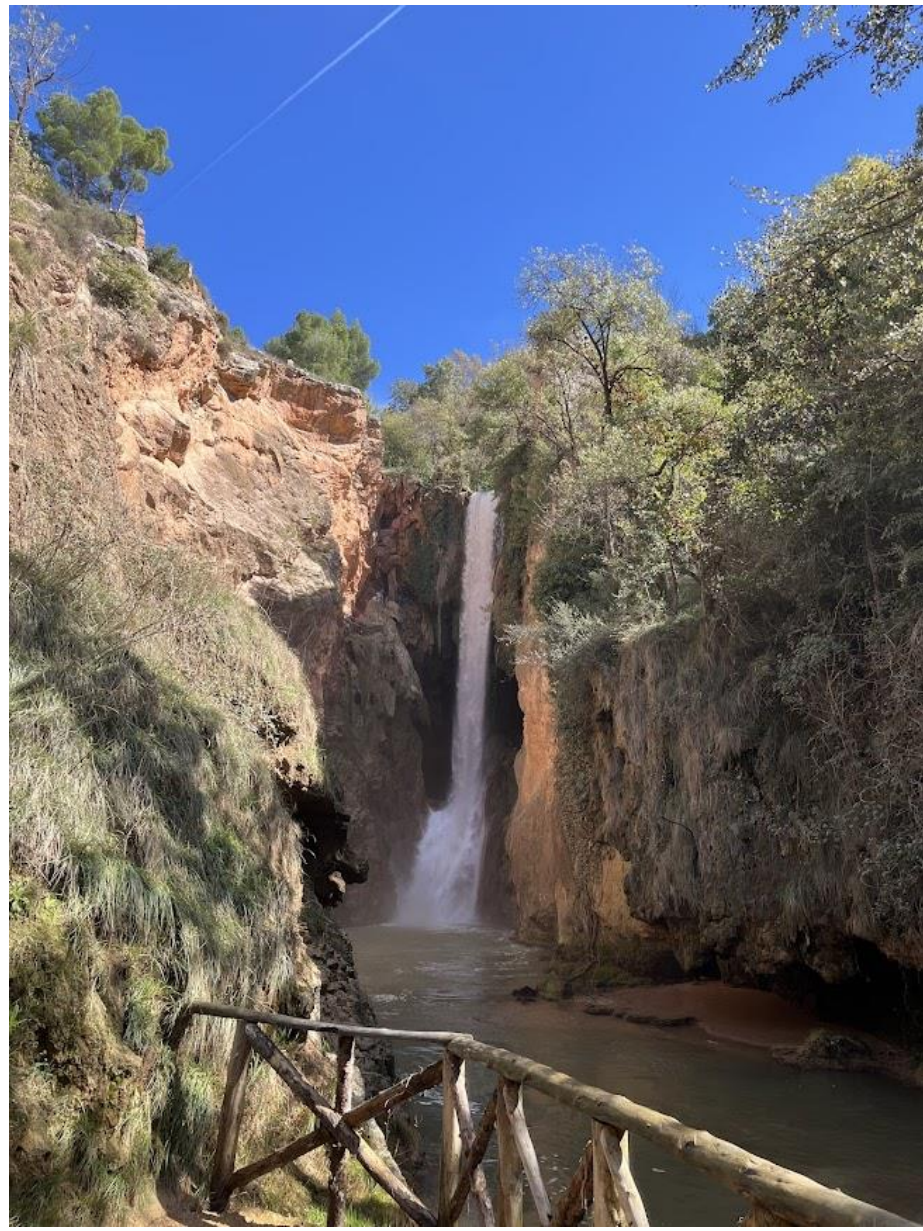
Ibon de Piedrafita

Cultural immersion in SPAIN

Nature



My favorites things



Monasterio de piedra

Cultural immersion in SPAIN

Food



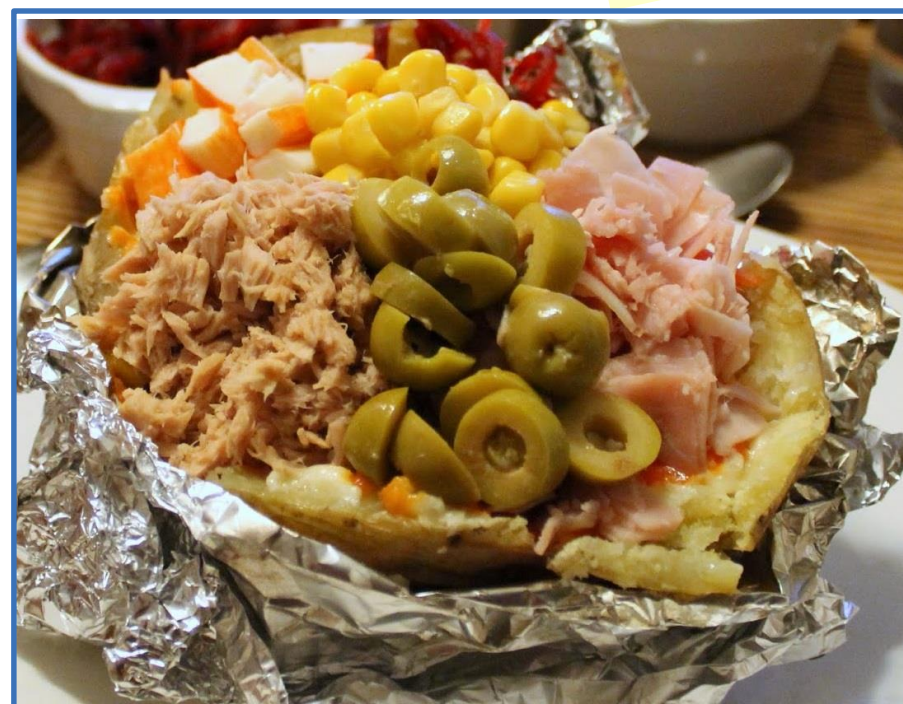
Churros con chocolate

Local fruit at Mercado Municipal



Huge paella

Jamón everywhere



Patata de feria



Homemade tortilla de patata (spanish roommate)

Cultural immersion in SPAIN

Festivals and Cuisine

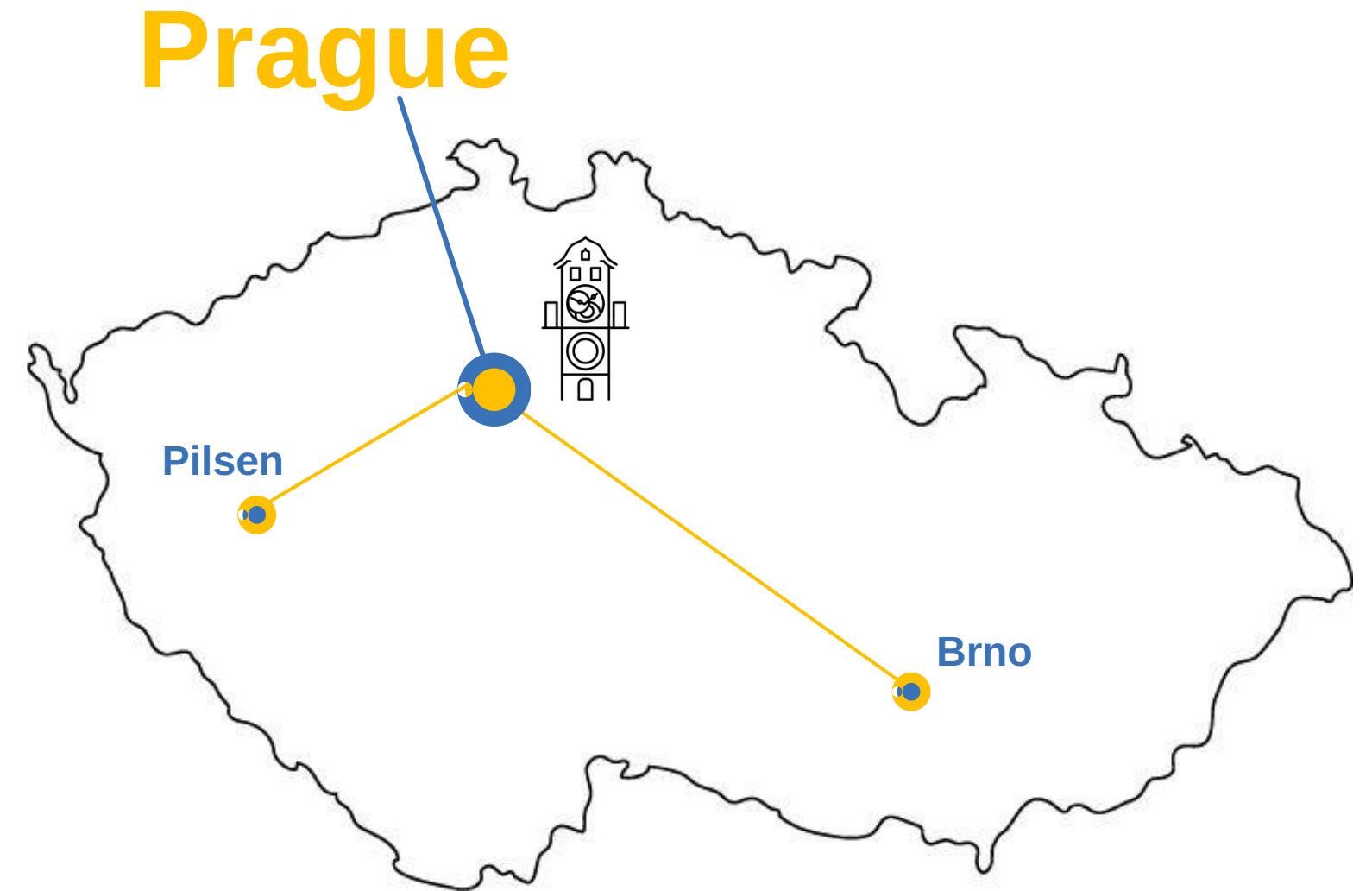
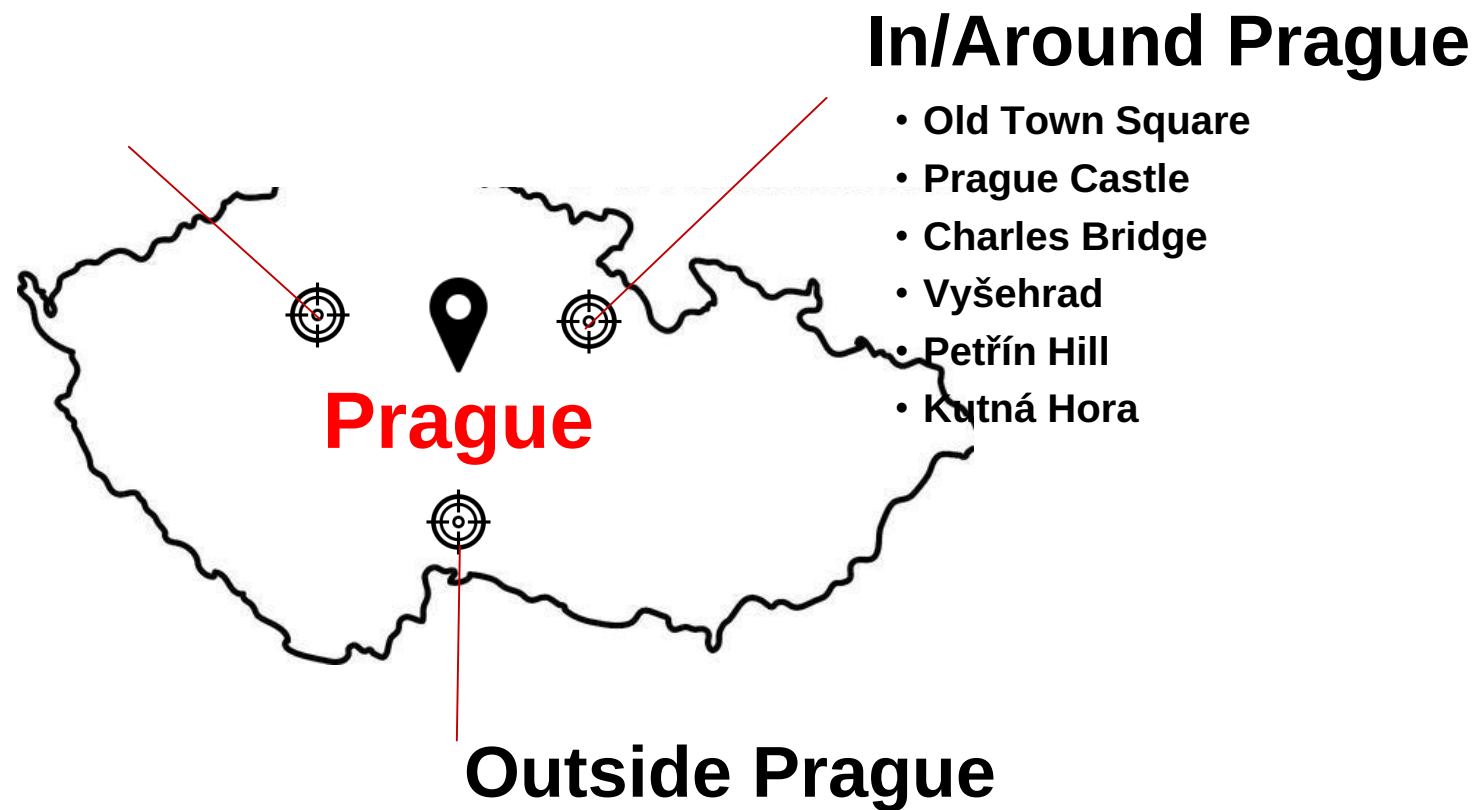
➤ Christmas Season and New year eve (Nochevieja)



Prague, Czech Republic

International Trips

- Vienna, Austria
- Budapest, Hungary
- Bratislava, Slovakia
- Slovenia
- Dresden, Germany
- Krakow, Poland
- Zurich, Switzerland



Cultural immersion in Czech Republic

Festivals and Places



Immersing in the tunes on Prague Spring International Music Festival

Don't miss the trip to the classical Strahov library and museum



Take a trip to old sewage treatment plant in Bubenci

An underrated destination for anime fans



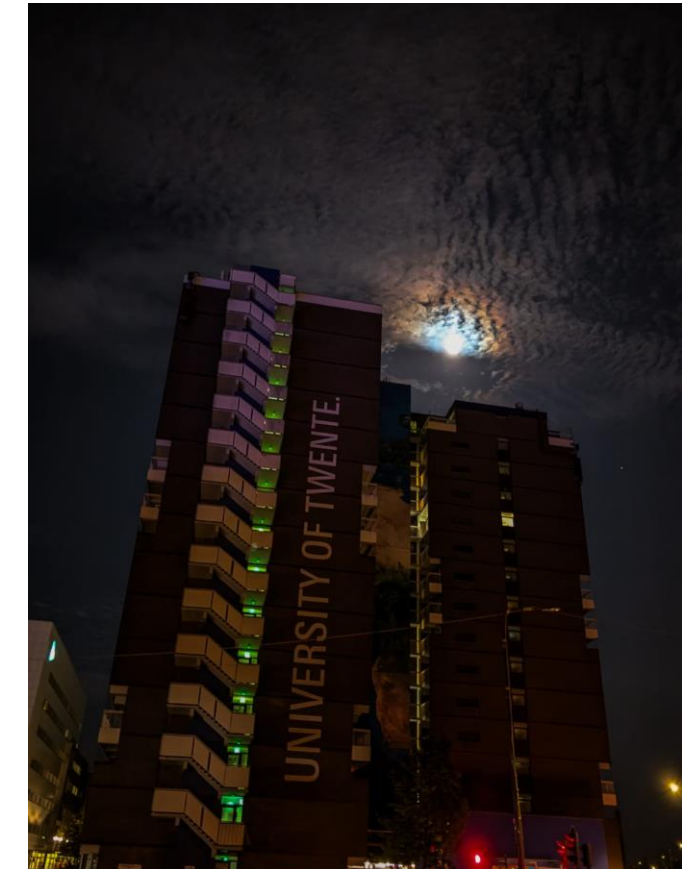
Cultural immersion in Czech Republic

Festivals calendar

- # Easter (Velikonoce) - (March/April)
- # May Day (Svátky jara) - (May 1st)
- # Liberation Day (Den osvobození) - (May 8)
- # Masopust (Czech Carnival) - (February/March)
- # Prague Spring International Music Festival
- (May 12 - June 4)
- # Walpurgis Night (Pálení čarodějnic) - (April 30)
- # Student Majáles Festival - (April/May)



Enschede, The Netherlands



Cultural immersion in The Netherlands

Life around the campus



A traditional inaugural lecture of Professor Wiebe de Vos for his Professor position

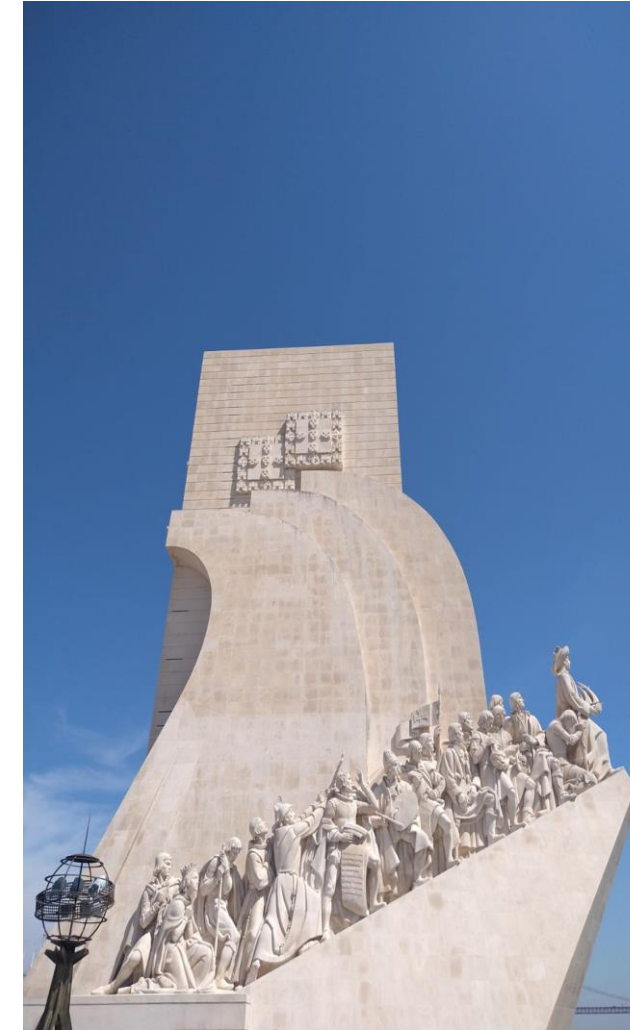


Friday evening and UNO



Enschede Saturday Market

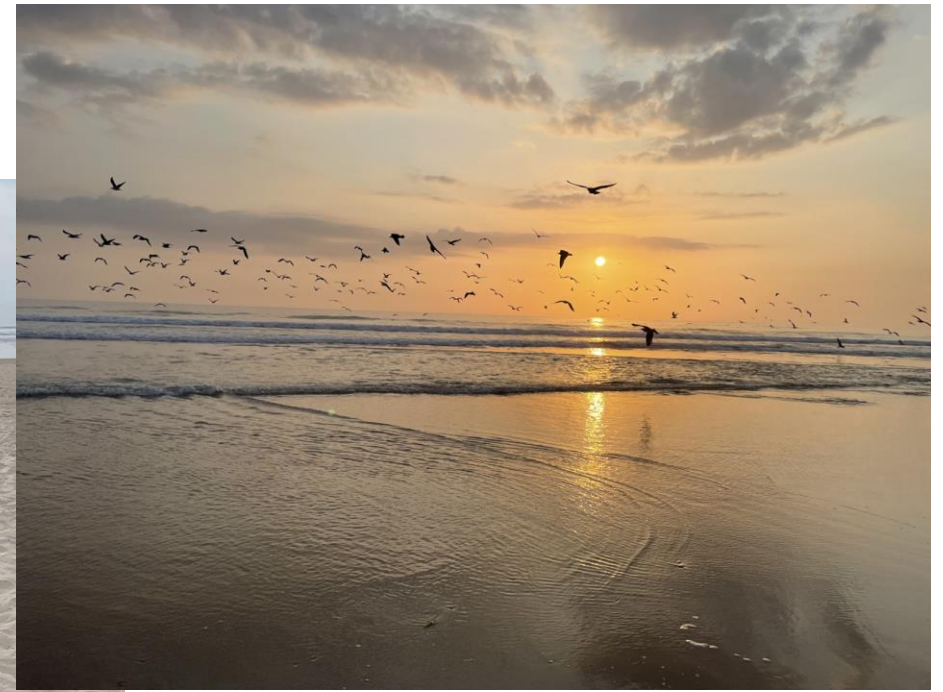
Lisboa, Portugal



Cultural immersion in Portugal

Sharing moments

Having dinner with the Professors at the beach of Caparica while enjoying the beautiful view of the sun setting.

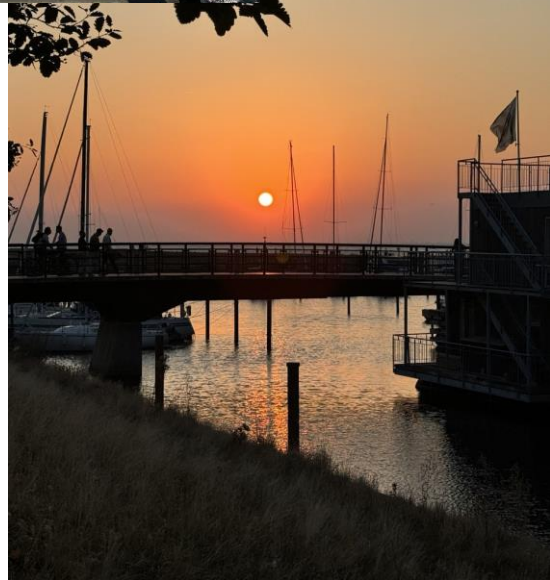
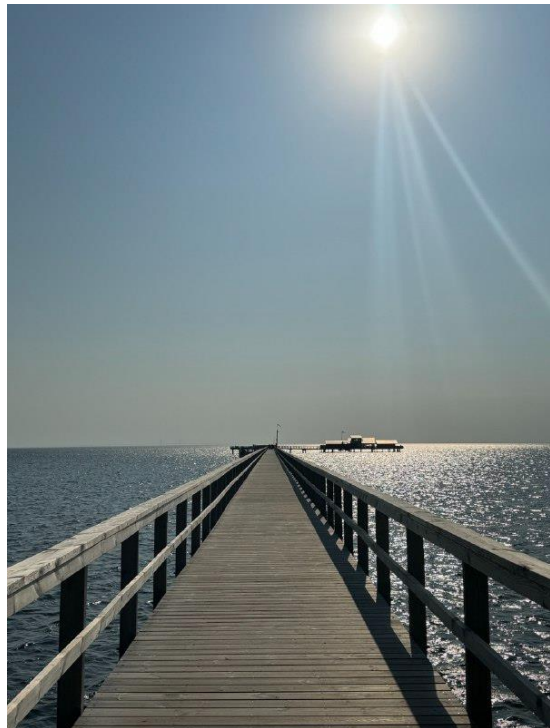


The talented NOVA Music Band of the University of Lisbon entertaining the new students to the university.

We also tried the famous Pastel de Nata in Fábrica da Nata!



Lund, Sweden

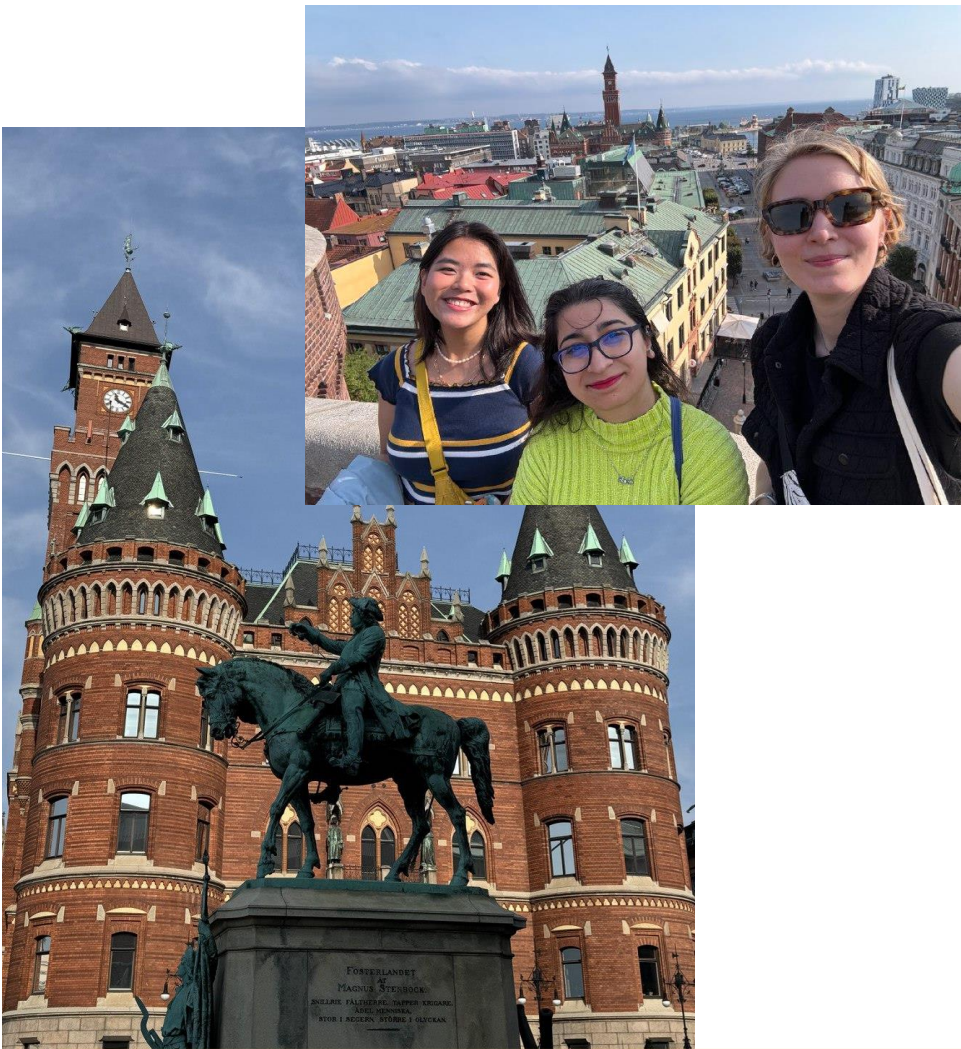


Cultural immersion in Sweden

Life around the campus



Kanelbullens dag (Cinnamon bun day)
A national holiday on October 3rd



A train trip
in the Skåne region on the "car free" day



Culture night in Lund
with music, food, lectures and more

Lecture by Nobel laureate
Anne L'Huillier



Explore work opportunities

Summer and
master thesis
Internships

Research at a university or
technologic center?

A career in industry?

Why choose?

Experience both worlds!

Explore the professional world: internships



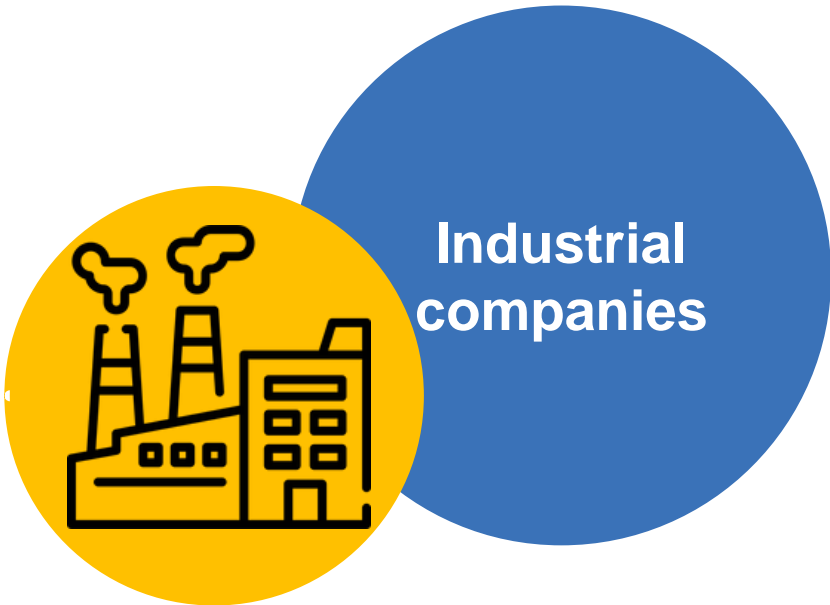
Summer Internship

When: Between the 1st and 2nd year

Duration: 6 to 10 weeks

Provides practical, hands-on experience and valuable learning opportunities

Optional



Industrial companies



Master's Thesis Internship

When: During the fourth semester

Duration: 6 months (24 weeks)

Provides first professional experience, allowing students to apply all skills and competencies learned during the program and valuable experience for the CV

Mandatory for obtaining the diploma, with a final report needed



Higher education institutions



Research and technology organisations

Examples of summer internships



INMA: Zaragoza, Spain.
Membranes applications for water treatment



Lequia: Girona, Spain.
Optimization of ammonium rejection by forward osmosis membrane.



Helmholtz Zentrum Hereon: Gesthacht, Germany
Project: Development Thin Film Composite Membrane (TFC) for Nanofiltration



KU LEUVEN

KU Leuven: Brugge, Belgium.
Project: Membranes synthesis and characterization

Examples of summer internships



DeltaMem AG: Allschwil,
Switzerland
Project : Membranes
characterisation and application



Copenhagen, Denmark
Project: Studying
membrane applications
in water



KU LEUVEN

Leuven, Belgium
Project:
Membranes and
green solvents

Examples of summer internships

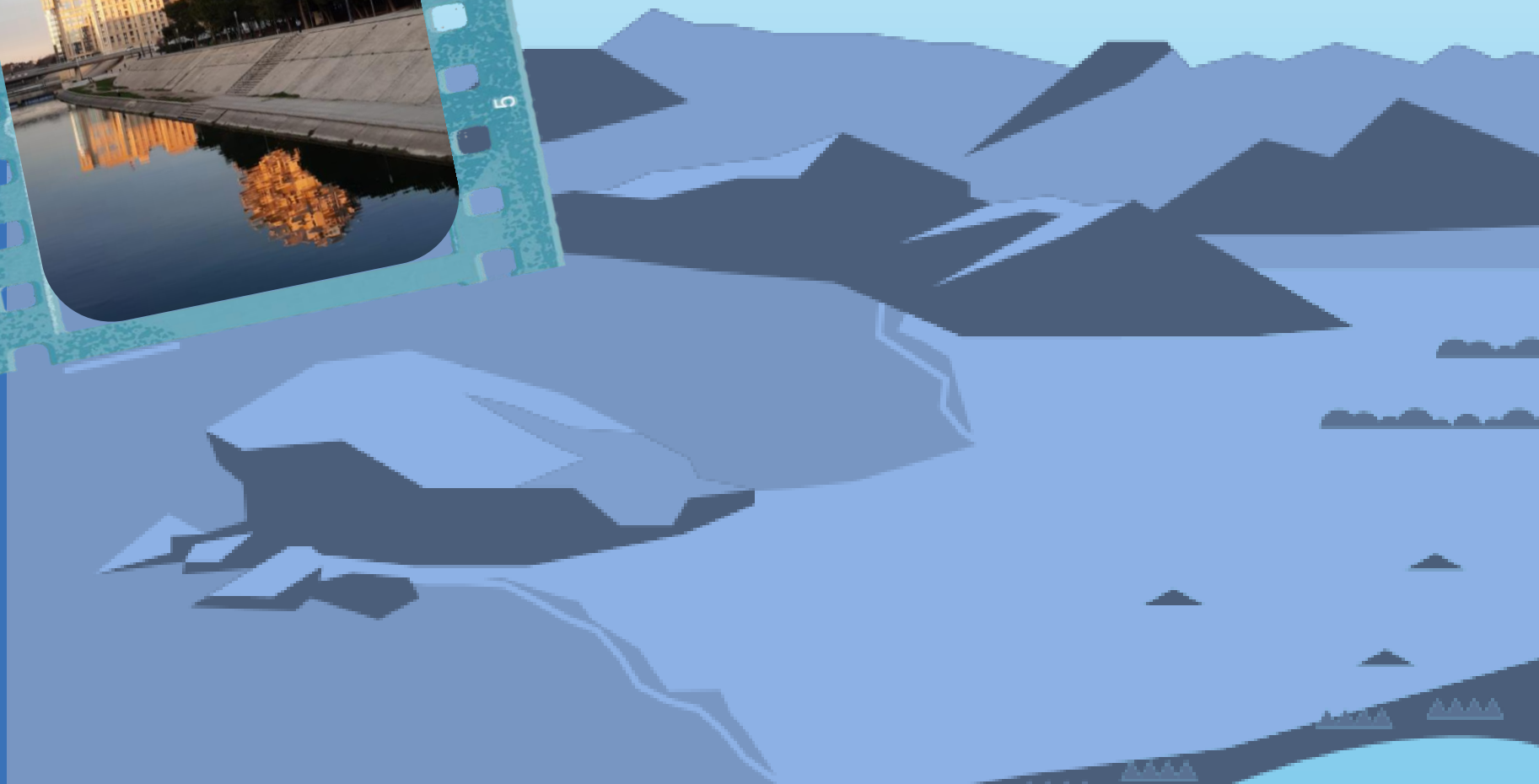


GVS s.p.a: Bologna, Italy.
Membranes for energy applications



Nakskov, Denmark
Project: Membrane characterization

SOUVENIRS



MemMAT

1st
semester



UNIVERSITÉ DE
MONTPELLIER

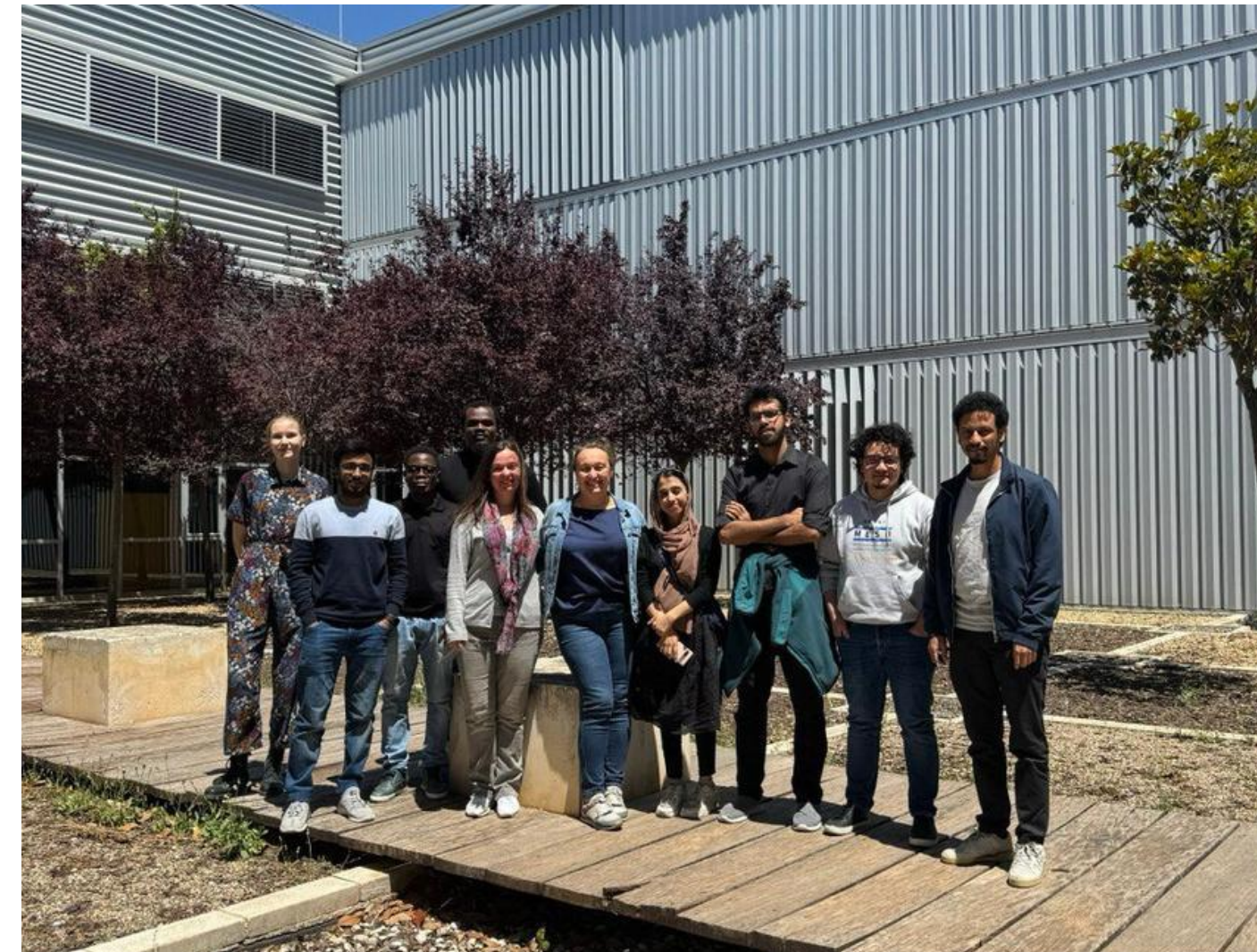
2nd
semester



Universidad
Zaragoza



Industrial visit + Nîmes excursion



After project defense at INMA

MemENG

1st
semester



UNIVERSITÉ
TOULOUSE III
PAUL SABATIER



2nd
semester



UNIVERSITY OF
CHEMISTRY AND TECHNOLOGY
PRAGUE

Memories!



Membrane Engineering for
Sustainable Development



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MemENG

1st
semester



UNIVERSITÉ
TOULOUSE III
PAUL SABATIER



2nd
semester



UNIVERSITY OF
CHEMISTRY AND TECHNOLOGY
PRAGUE

Memories never end!



MemTECH

1st
semester



Universidad
Zaragoza

2nd
semester



UNIVERSITY OF
CHEMISTRY AND TECHNOLOGY
PRAGUE

Memories!



**Fiestas del Pilar, running
around Basílica del Pilar, Ebro
Food Trucks, and more!**

A Lot of First Days!



1st Summer School 2023 in UM



1st Day at UCT



1st Day at UNIZAR

Fun Moments...



The MESD adventurous travelers



- | | | |
|--------------|--------------|-----------------|
| # Algeria | # Iran | # Philippines |
| # Azerbaijan | # Japan | # Poland |
| # Bangladesh | # Kazakhstan | # Russia |
| # Canada | # Mexico | # Syria |
| # Colombia | # Morocco | # Taiwan |
| # Egypt | # Mozambique | # Ukraine |
| # Eritrea | # Nepal | # United States |
| # Ethiopia | # Nigeria | # Vietnam |
| # Ghana | # Pakistan | # Yemen |
| # Indonesia | # Panama | |

Class of 2024-2026

M E S D
Membrane Engineering for
Sustainable Development



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Naila Amel AGOUN



Ivan Alejandro
ARELLANO AVALOS



Cameron Lewis NEVEL



Nabila Aulia Laely PUTRI



Katelyn Elizabeth
GEORGE



Natsuki MORIMOTO



Carolina VALLEJO
ALARCÓN



Muhammad Sammam
SADID



Sophie Chan FALLON

Class of 2024-2026



Aydin ABUSHOV



David Etido AWAK



Ilies DJAFFAR



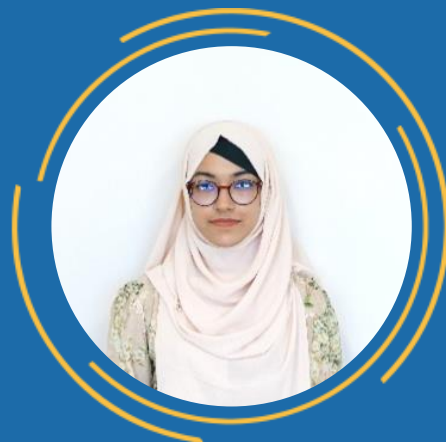
Aydan GULIYEVA



Gonçalo Simão
MACHATINE



Zhanerke IBRAYEVA



Raisa MUMTAZ



Cidrik TEKESTE



Tsegazeab Gebreslassie
HAILESLASSIE

Class of 2024-2026



Fiza BUTT



Fseha Gebremichael
GEBRIHET



Ana Abed LEON
GUTIERREZ



Ting Wei LIU



Natalia NOWAK



Kateryna SVYRHUN



Yaneris Cristal
VELASQUEZ REYES



Savera ZAHID

Water



LUNDS UNIVERSITET

Class of 2023-2025



Amgad AL-ARIQI



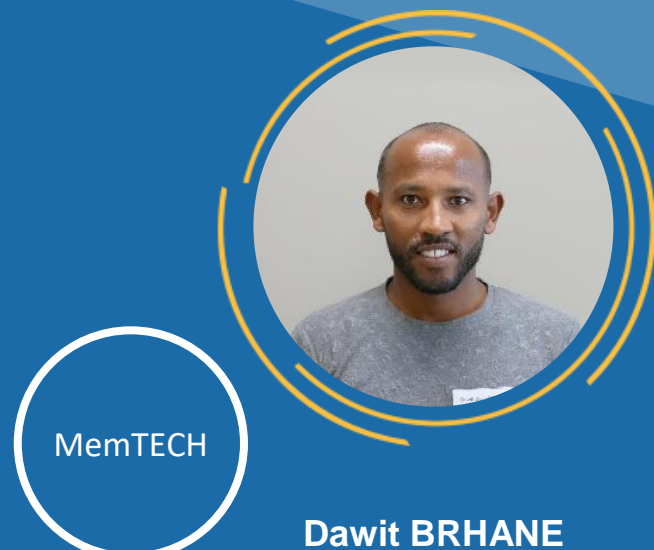
Golshan SABBAGHIAN



Alula HALEFOM



Liza ROMANENKO



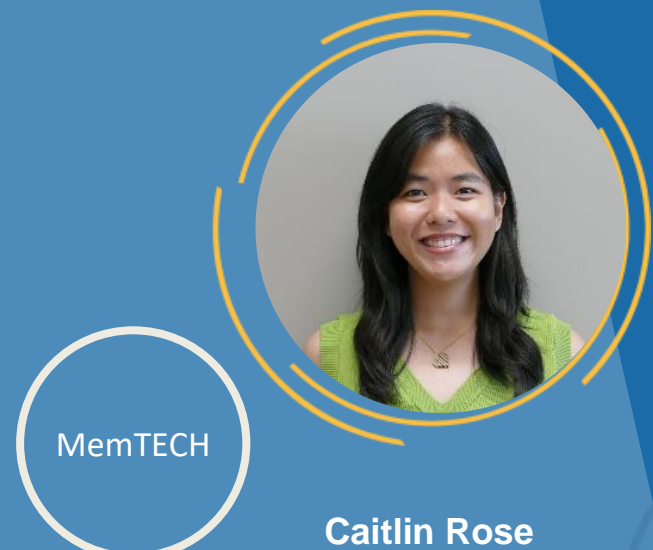
Dawit BRHANE



Mehrafarin
HOSSEIN PANAHA



Uzoma IBEANU



Caitlin Rose
CAPINPUYAN

Food, Bio and Health

Class of 2023-2025



MemENG

Esfand Yar ALI



MemMAT

Jacking AMENAKPOR



MemMAT

Samuel ANIAKA



MemENG

Mouna TAOUSS



MemTECH

Daniela Guadalupe LUNA
GAZCON



MemTECH

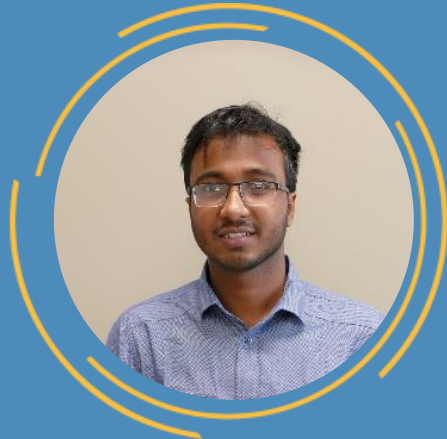
Haitham ELEMAM

Class of 2023-2025



MemTECH

Andreas



MemMAT

Jahangir ALOM



MemENG

Charlie ASPILLAGA



MemMAT

Sagar BAN



MemENG

Sally KALALEEB
ALASHABI



MemENG

Thi Thu Hang LE



MemMAT

Abdur RAHMAN



MemMAT

Samman SAGHIR



Membrane Engineering for
Sustainable Development



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Make the most out of
your time with MESTD!





United in celebration of our European values

#ERASMUS DAYS

14 > 19
of October
2024



Erasmus+
Enriching lives, opening minds.

This MESD travel guide is a project celebrating Erasmus Days, where students from the MESD Erasmus Mundus program share their unique experiences of living, studying, and traveling across Europe.

It brings together personal stories, travel tips, and cultural insights from students of diverse backgrounds and nationalities.

The guide aims to inspire future Erasmus participants by highlighting the beauty of cultural exchange and the vibrant, shared experiences that define the Erasmus community.



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