EUROfusion-FuseNet seminar

Student Opportunities in Europe

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The EUROfusion Consortium

EUROfusion integrates Research & Development in nuclear fusion in Europe funded by the European Commission.

26 + 3 Countries

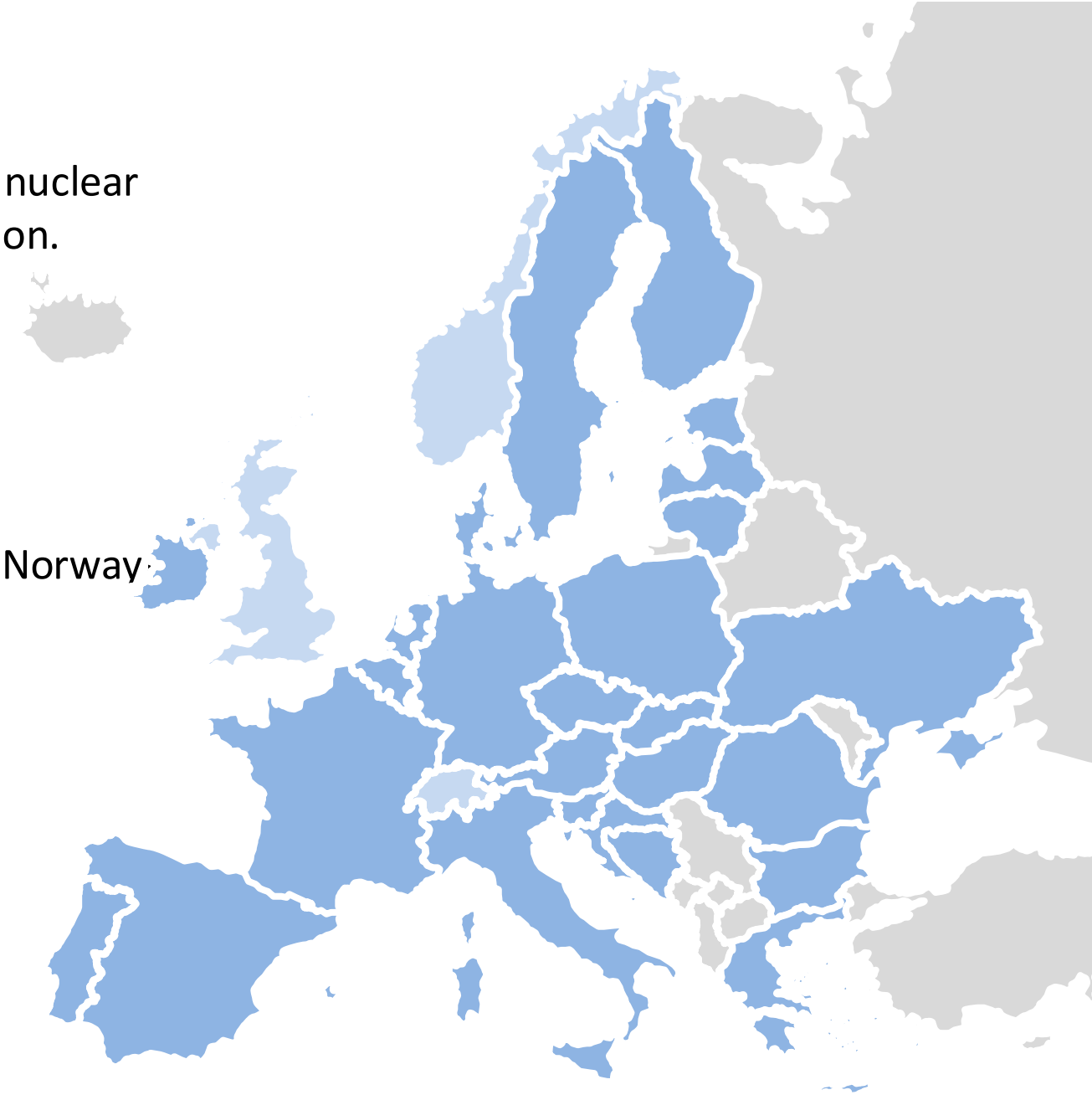
28 Research Institutes (members)

3 Associated partners (UK, Switzerland, Norway)

202 Institutes, universities **incl. FuseNet**

1000+ MSc and PhD students

5000+ Fusion scientists, engineers and support staff



EUROfusion Education & Training Work Package

Student opportunities and information sessions:

- **Outreach and student events, educational materials, support of internships and participation in summer/winter schools, workshops** via FuseNet
- **Financial support of PhD and MSc students** and their supervisors (salaries, missions, training and equipment)
- Overview universities, MSc and PhD programs, courses

Applications:

- **2-year excellence post-graduate scholarships** for individual research projects for scientists and engineers
- **JT-60SA International Fusion School**

Launch of the new eLearning platform in 2026

- Fusion Education and Learning Hub: a **new eLearning platform** to host recorded and live online university courses accessible across Europe and globally. Also include list of education and training opportunities for students, early careers and onboarding of new starters from other industries.

Events:

- **Knowledge management workshops** to capture and transfer tacit knowledge

120

universities affiliated
with EUROfusion in Europe
+ several members of institute lecture

800+

PhD students
Self-reported registry + official reporting
from the institutes

256

MSc students
Largely underreported

Overview

LEVEL	EUROFUSION ACTIVITIES	COLLABORATORS' ACTIVITIES
Schools, outreach	Class notes in national languages for schools. (**via FuseNet**) Teachers's day (**via FuseNet**)	ITER visit for teachers – funded by the European Commission. ITER internships
Bachelor students	1st Fusion Hackathon (**via FuseNet**) Student day (online, **via FuseNet**)	ITER internships F4E traineeships
Master students	6 weeks to 6 months internships (**via FuseNet**) Participation in summer/winter schools (**via FuseNet**) Student day (online, **via FuseNet**) Contribute to salary, missions, training, conferences, equipment, goods and services, supervisor – EUROfusion Education budget Repository of MSc thesis on the EUROfusion pinboard	ITER internships F4E internships
PhD students	PhD day (in-person event, **via FuseNet**) Contribute to salary, missions, training, conferences, equipment, goods and services, supervisor – EUROfusion Education budget. Participation in the JT-60SA International Fusion School. Repository of PhD thesis on the EUROfusion pinboard	ITER PhD scholarships.
Early career	EUROfusion Researcher Grants (within 2 years of PhD) EUROfusion Engineering Grants (within 6 years of MSc) Participation in the JT-60SA International Fusion School.	
ALL	Fusion Education and Learning Hub – eLearning platform **FuseNet** repository of educational material	INFUSED – ITER's repository of educational materials. IAEA connect platform to be extended to fusion training content.

Strength of the Collaborative European Approach

EUROfusion includes 120 of the EU universities

- **Education funding** to contribute to the salaries, missions, training and equipment used by **MSc and PhD students**
- Funding **FuseNet** to offer internships for MSc students (up to 6 months), participation in summer schools, workshops, educational equipment, student/teachers' days
- Any student/expert can **participate in any research program** through the EUROfusion thematic projects called work packages. Co-funding of salary and missions.
- Funding and coordination to **participate in international collaborations** (e.g. ITER, JT-60SA, USA, China, Korea, Japan).

No nationality requirement. Requirement to be affiliated with one of the 202 institutes/universities affiliated to EUROfusion.

Monthly information sessions
For connection details send request to **training@euro-fusion.org**

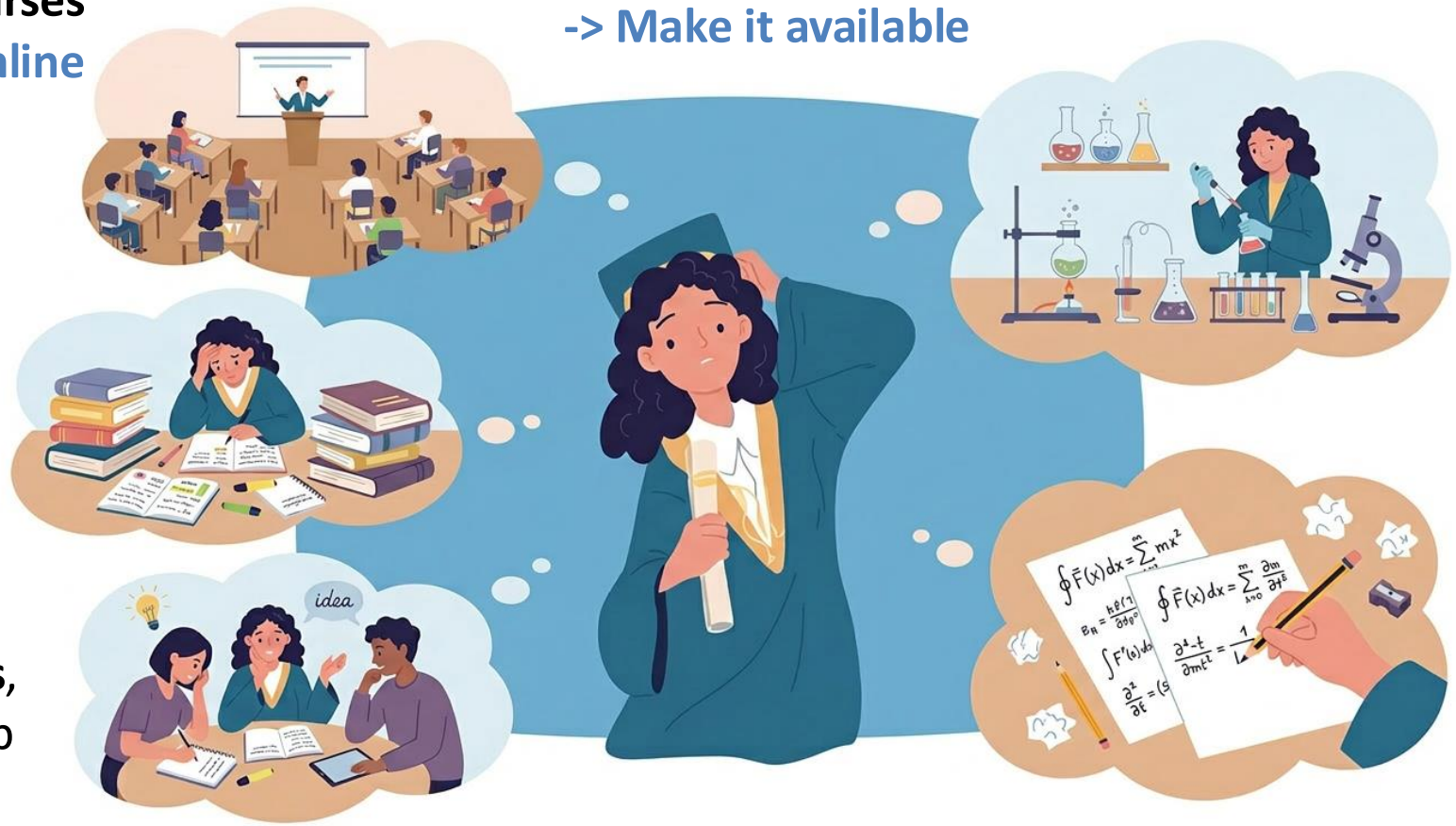
Fusion in Universities

List of **university lecturers & courses**
-> Offer courses online

List of **BSc, MSc, PhD degree programs post-grad scholarships**
-> Make it available

Thesis research projects
-> Offer student mobility and internships
-> List of Engineering topics

Study material
such as textbooks, on-demand courses



Practical exercises, individual or group projects

Summer schools with **practical exercises** & Social engagement

Fusion Schools in Europe

- Carolus Magnus Summer School (Belgium, Netherlands and Germany) - next school in 2026.
- Culham Summer School (United Kingdom)
- Festival de Theorie (France)
- Fusion pour Tous (France, in French)
- IPP Summer University (Germany)
- ITER International School, 2025 ITER International School on Integrated Modeling
- JIFS JT-60SA International Fusion School (European-Japanese collaboration)
- Karlsruhe International School on Fusion Technologies (Germany)
- Kudowa Summer School (Poland)
- PhDiaFusion Summer School of Plasma Diagnostics (France, Poland)
- Plasmasurf (Portugal)
- SUMTRAIC Summer Training Course in Prague (Czechia)

Fusion School in Japan: JT-60SA International Fusion School

European-Japanese collaboration to train the new generation of researchers for JT-60SA

- Lectures on physics, engineering & operations
- 2 days practical group exercises
- 1 day EU and Japanese fusion strategy
- 4 student-led discussion sessions
- Visit of the JT-60SA facilities, Japan and EU tour
- Strong social engagement (posters, student culture talks, student-organized excursion, Japan cultural events)

Low student number: 10 EU + 10 Japan
High lecturer number who are available for 1-2 weeks

Cohorts maintain contact, have contact at EU and Japanese devices, increased motivation and engagement
Expansion into European participation in the **JT-60SA onsite laboratory** to increase number of European students

Fusion educational materials

Repository of seminars, books

- **INFUSED The International Fusion Education Initiative** (ITER)
- **FUSEnet Educational Materials** (Europe)

Recorded Courses

- EPFL on EdX: Plasma Physics - Introduction (EPFL, Switzerland)
- 2020 Introduction to Fusion Energy and Plasma Physics Course (PPPL, USA)
- 2021 Computational Physics School for Fusion Research, 2023 CPS-FR school website

Books

- Focus on JET – introduction to tokamaks at BSc level
- Fundamentals of Magnetic Fusion Technology - download ebook from IAEA
- Wesson: Tokamaks

Knowledge capture – Engineering Design

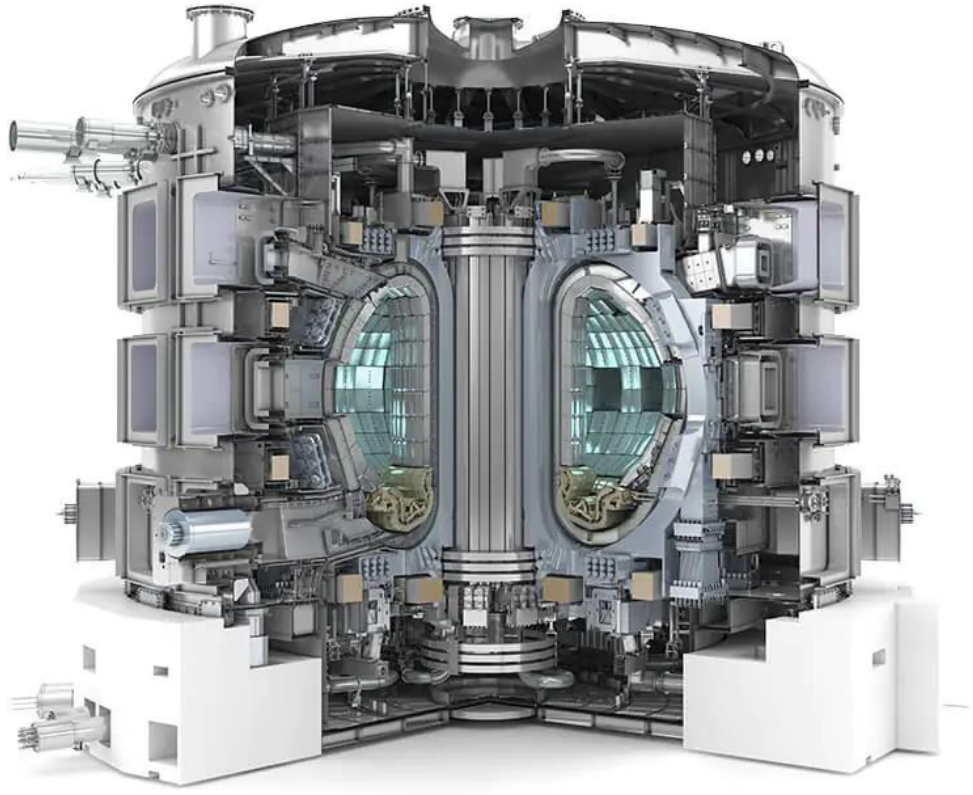
ITER Engineering Design Handbook

- Capture the experience, lessons learned and the reasons behind decisions made by the engineers who designed ITER
- Use as Engineering textbook

Available from: https://www.iter.org/scientists/iter-technical-reports/iter-engineering-basis-handbook

Next steps:

- Complete 1st textbook (by 2026)
- Continue writing 2nd textbook (by 2027)
- Training session with early career engineers (2026)
- 2-day course with the editorial team (2027)



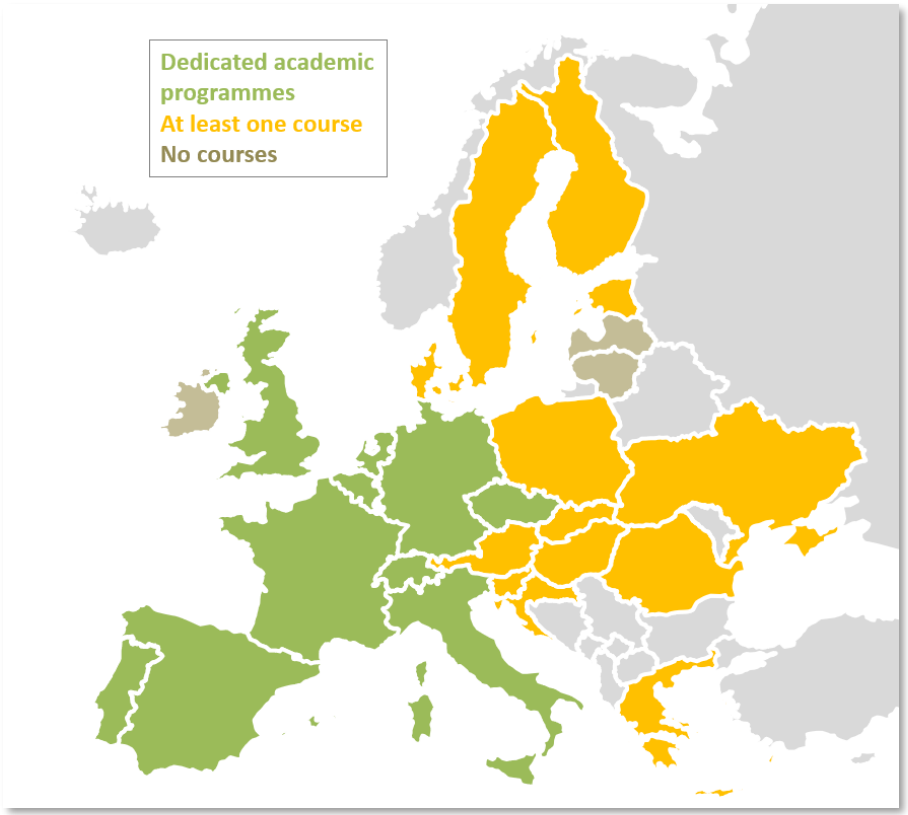
3.1 Make existing courses/material accessible to more students

Annual education programme surveys indicate the lack of availability of courses dedicated to fusion across Europe.

The **Fusion Education and Learning Hub (FuEL)** will host a comprehensive curriculum of online university courses and training material widely accessible across Europe and worldwide.

Objectives:

1. Make fusion education and training available and accessible across Europe and worldwide to students, new starters & as continuous education for current staff.
2. Provide comprehensive fusion curriculum, a wide range & variety of topics from introductory to advanced level.
3. Provide information information on resources and opportunities to join and train in the fusion sector globally.



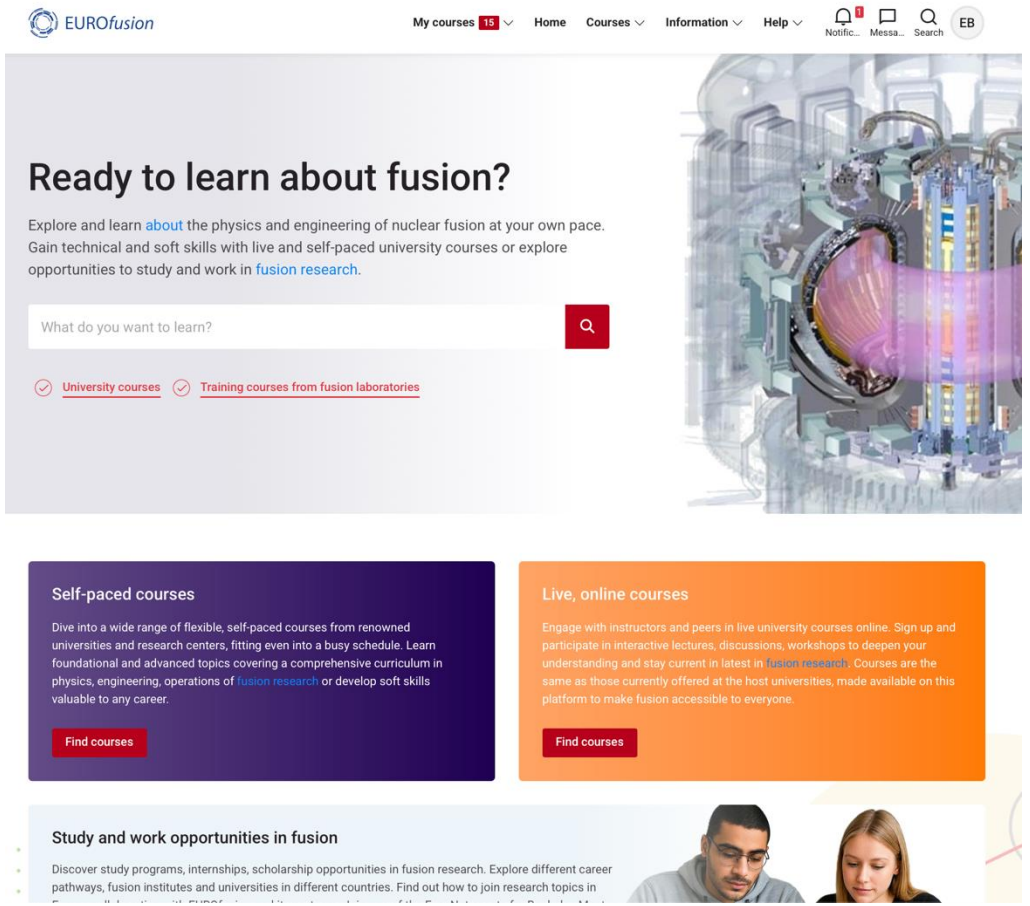
3.1 Make existing courses/material accessible to more students

The **Fusion Education and Learning Hub (FuEL)** will host a comprehensive curriculum of online university courses and training material widely accessible across Europe and worldwide.

- Recorded university courses
- Live online university lectures
- Practical exercises with solution walkthroughs
- New courses in scarce and important areas.

- Information on resources and opportunities to enter fusion research.

Website: https://elearning.euro-fusion.org



Status: under development. Courses available for testing with public access.
Please contact us for collaboration on making more training material, courses and information available to students and professionals interested in fusion.

Education budget of the EUROfusion Beneficiaries

EUROfusion contributes to the cost associated with **MSc students (up to 1 year)** and **PhD students (up to 5 years)** up to a budget ceiling calculated for each EUROfusion Member each year.

Funding is organized through the EUROfusion member institutes. We have a list of universities offering MSc and PhD in nuclear fusion.

COST CATEGORY	PHD PROGRAMME	PRE-DOCTORAL PROGRAMME	FUNDING RATE
Personnel costs	Salary or grant of the PhD student	Scholarship or grant of the pre-doc student	70%
Personnel costs	Salary for mentoring (up to 0.1 ppy per year per student)	Salary for mentoring (up to 0.1 ppy per year per student)	50%
Other direct costs – Travel costs	- Costs for missions to undertake collaborations necessary as part of the PhD programme. - Participation of PhD students to conferences, summer/ winter schools, other collective training events and courses	- Travel costs of pre-doc students for stays in other laboratories or industry. - Participation of pre-doc students to conferences, summer/winter schools, other collective training events and courses	70%
Other direct costs – Equipment	Equipment purchased for PhD students for the sole use in the action (depreciation costs)	Equipment purchased for pre-doc students for the sole use in the action (depreciation costs)	40%
Other direct costs – Goods and services	Other goods and services purchased for PhD students (e.g. fees for participation in conferences, summer/winter schools and other collective training events, purchase of consumables, student tuition fees, all other costs for the sole use in the action)	Other goods and services purchased for pre-doc students (e.g. fees for participation in conferences, summer/winter schools and other collective training events, purchase of consumables, student tuition fees, all other costs for the sole use in the action)	40%

Question: How to find a PhD position in Engineering?

EUROfusion collates potential research topics for Engineers as part of the EUROfusion Engineering Grant applications suitable for post-master research, PhD or post-doc positions. The list of topics including the list of institutes interested to hire a candidate is listed as part of the EUROfusion Engineering Grant application documents.

1. Review list of the Engineering Research topics as part of the EUROfusion Engineering Grant (EEG) application documents:
   2025 list: https://euro-fusion.org/wp-content/uploads/2025/06/CfP-TRED-AWP26-TRED-03_EEG_Annex_5_Competency_Areas.xlsx
   2026 list: to be launched in June 2026 on social media and the EUROfusion website.
2. Check the competence and research topic (column B and C).
3. See the list of interested institutes to hire (column F). Institutes are listed with their acronyms. The second tab gives you the country of the institute.
4. See the list of EUROfusion members per country at https://euro-fusion.org/eurofusion/members . Find the contact details and website of the institute in question.
5. Contact the institute to discuss your interest in the proposed research topic.

Applications for the EUROfusion Grants starting in 2026

2027 EUROfusion Bernard Bigot Research Grant

- 2-year post-PhD researcher grant, 9* grants per year
- Within 2 years of completion of the PhD defense.
- Individual project. Option to join EEG training seminars.

Status: Applications are closed

2027 EUROfusion Engineering Grant

- 2-year post-MSc engineering grant, 14* grants per year.
- Within 6 years post-Master in Engineering (or proven multi-year engineering experience).
- Individual research project + EUROfusion Engineering Training Programme

Status: To be launched in June 2026

Fusion for early careers – EUROfusion Grants Scheme

Limited number of 2-year scholarships covering, salaries, missions, equipment with selection based on the excellence of the candidate. No nationality requirement, but employer must be affiliated to EUROfusion.

High priority engineering topics identified yearly

Input from the European labs, projects, F4E and ITER

Joint Engineering Training Program

Bimonthly online lectures on technical or softs skills

Individual 2-year research project

Defined by the grantee and the employer

Community building

1-week induction in Garching, discussion with EUROfusion engineers and senior managers

Individual 2-year training plan (30k EUR)

Conferences, training courses, European / International missions

Mentorship

Local mentors with EUROfusion project leader and programme management contact points for extra support

After the university – Towards large scale projects (JT-60SA, ITER)

🌍 **F4E Traineeship Programme** offers recent graduates (BSc or MSc) hands-on experience on large-scale projects such as ITER and Broader Approach Project such as JT-60SA.

- 💼 Trainees work on **real technical and support projects** experiencing the full life cycle (design, procurement, manufacturing, installation, commissioning) alongside experts, contact with industry
- 🎓 Open to graduates from a wide range of backgrounds (engineering, science, project management, law, HR, communication, finance, and more), with a **paid grant and travel allowance**.
- Strong recruitment prospect after internship

Memorandum of Understanding between the ITER Organisation and EUROfusion

- Joint activities include training, education, knowledge management and operations

JT-60SA International Fusion School – collaboration between QST and EUROfusion.

European participation in the **JT-60SA Onsite Laboratory** is under development to increase the participation of European students in the JT-60SA project (MSc and PhD students, and early careers in physics, engineering and operations).

General remarks

EUROfusion **does <u>not</u> have a nationality requirement**. However, to receiving funding, you **have to be affiliated with a EUROfusion institute or university** (one of around 200 institutes in Europe).

- If you are not yet affiliated to EUROfusion, you can explore joining one of the institutes or universities.

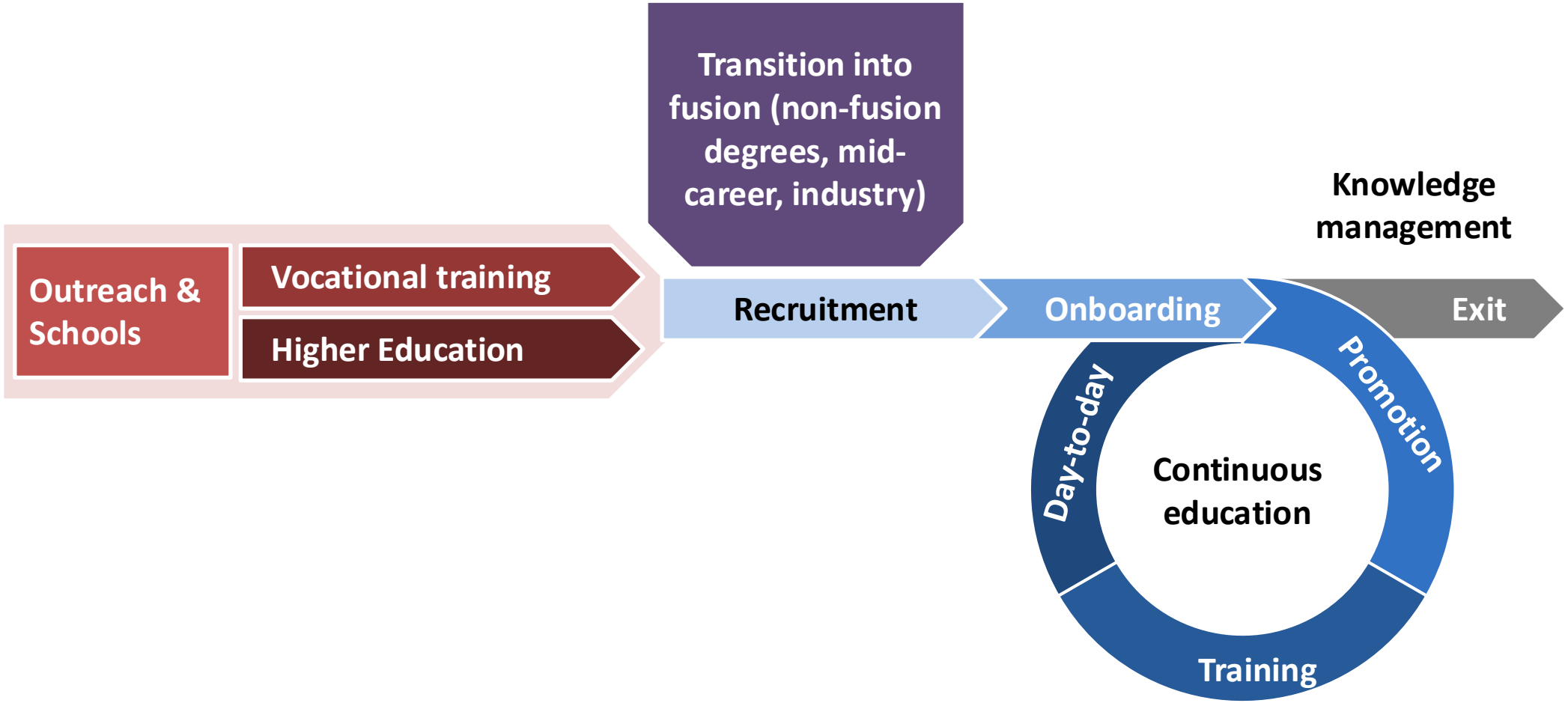
European research is coordinated in 22 research topics (work packages).

- Open calls for proposals and participation in activities for experts affiliated with a EUROfusion institute.
- Anyone affiliated to EUROfusion as well as international collaborators can propose experiments on European devices following the respective process, and if selected, join the experiment teams.

Hiring (for MSc thesis, PhD and staff positions) are handled locally by the institutes.

List of EUROfusion members and contact details: https://euro-fusion.org/eurofusion/members/

2 - Integrated approach for the whole career path



2 - Integrated approach for the whole career path

Outreach activities in each country by the members in the local language.

Vocational training often through shadowing.

Oxford Advanced Skills (OAS) in the UK as regional technical training centre.

Transition into fusion (non-fusion degrees, mid-career, industry)

Fusion Technology Transfer programme

Strategy involving fusion industry and nuclear fission sectors under the new consortiums in the EU.

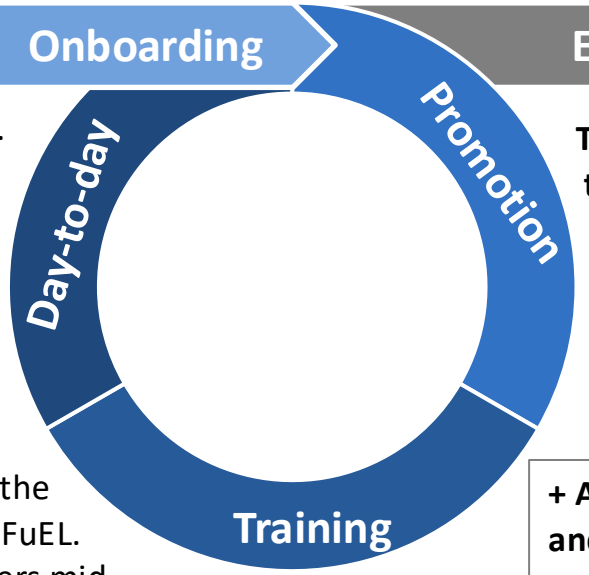
Fusion Industry School and **secondment/consultancy** scheme to startups/industry in the UK.

Outreach & Schools

Vocational training

Higher Education

Recruitment → **Onboarding** → **Exit**



Talent recruitment & retention.

Knowledge transfer and collaboration via the individual fusion projects (work packages).

Continuous training via the online learning platform FuEL. Onboarding of new starters mid-career.

Tacit knowledge capture, transfer and retention in engineering and operations. Focus on the needs of large-scale new builds.

+ Accessibility, diversity and inclusion in training and workforce.

Teachers' day and school material in local language by **FuseNet**.

ITER visit for school teachers organized by the European Commission.

Financial support for salaries, mission, training for **MSc and PhD students**.
MSc internship, MSc/PhD day through FuseNet.

Post-graduate scholarship for 2-years.

Workshops and summer schools.

+ Collaboration with European and international partners.

Any questions?

Please contact us with any questions or feedback on the current schemes and needs.

Email:

- education@euro-fusion.org
- training@euro-fusion.org

Reports:

Download our reports at https://euro-fusion.org/eurofusion/roadmap/:

- **European Research Roadmap to the Realisation of Fusion Energy**
- **EUROfusion Human Resource Survey and Workforce Development Report**
- **EUROfusion Knowledge Management Strategy**

Annex – BSc, MSc, PhD degree programmes in Fusion

Please note that many nuclear degree programmes, not listed here, offer specialization in fusion

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Knowledge Management

The knowledge management connects people to people, and people to content using **systematic approaches to enable knowledge and information to grow, flow and create value.**

The EUROfusion knowledge management strategy focuses on the **capture, codification, transfer of tacit knowledge** of EUROfusion experts converting it into explicit knowledge **enabling better knowledge sharing** and transfer between experts.