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SUMA: Master in Sustainable Materials

LAUNCH YOUR CAREER

IN RAW MATERIALS



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Introduction

A scenic landscape at sunrise or sunset. The sky is a mix of orange, yellow, and purple. In the foreground, a grassy hillside slopes down. In the middle ground, a valley is filled with a sea of white clouds. Several wind turbines are visible on a ridge in the distance, and one is prominently featured on the right side of the frame. The overall atmosphere is serene and hopeful.

Our modern lifestyle relies on raw materials. From the iron and steel of our railway infrastructure to the gold and silver in the circuitry of smartphones: raw materials are everywhere. The transition to a climate neutral future requires cobalt for electric vehicles, lithium for rechargeable batteries, silicon for solar panels, and rare earth elements for wind turbines that generate renewable energy.

As the world grows smaller and more hyper-connected, the impact of society on the Earth has never been more visible. It is now clear that we need to shift to a circular economy in order to responsibly use the Earth's finite resources. But what can just one individual do to help? More than you think! Real change requires courage, innovative thinking, and collective action – the same skill set that EIT RawMaterials Academy looks for in prospective students. Are you ready to mine your raw talent, help shape a more circular, green economy, and create sustainable solutions for tomorrow?



What do we offer students?

EIT RawMaterials Academy offers students a unique opportunity to learn in a dynamic environment, focusing on real-life challenges. Awarded by the EIT (European Institute of Innovation and Technology), a body of the European Union, the EIT Label is a certificate of quality that is granted only to excellent educational programmes at the master's and doctoral level.

As a student of an EIT-Labelled programme from EIT RawMaterials Academy, you'll be part of the largest European raw materials network with more than 300 organisations as partners, including higher education professionals, researchers, and industry experts from over 20 European countries. As an EIT Label student, you will be welcomed into this network and will champion and contribute to the EIT RawMaterials goals of finding new, innovative solutions to secure the sustainable supply of raw materials across the value chain: from exploration, mining and mineral

processing to recycling, substitution and a circular economy. EIT RawMaterials aims to equip a new generation of innovators in Europe with the necessary entrepreneurial mind-set for designing and delivering materials solutions. You'll also get the chance to collaborate internationally and develop sustainable solutions to pressing economic, environmental and societal challenges. And long after you graduate, you can stay connected via EIT RawMaterials Alumni.



JOIN AN EIT-LABELLED PROGRAMME AND BECOME A
GLOBAL GAME-CHANGER, EQUIPPED WITH THE KNOWLEDGE,
SKILLS AND EXPERIENCE EMPLOYERS SEEK.



What to expect?



→ Thesis internship placements at leading European companies

→ Membership of the EIT RawMaterials Alumni community

→ 'Learning by doing' with challenge-based courses that focus on real-life problems

→ Study tours and visits to innovative companies and industrial sites

→ Exciting new ways of learning: online courses, virtual and augmented reality and MOOCs

→ Courses designed to nurture start-up ideas

→ Course modules dedicated to entrepreneurship and innovation skills

→ EIT RawMaterials Innovation support: business plan competitions, innovation bootcamps and funding

→ Expertise in a raw materials discipline – a comprehensive understanding of the entire raw materials value chain

→ EIT RawMaterials summer schools and interdisciplinary courses

→ European mobility – study in at least two European countries

Exclusive activities and support for EIT-Labelled students

Students on EIT-Labelled master's programmes within the EIT RawMaterials Academy receive a range of additional opportunities to boost their innovation and entrepreneurship skills, grow their network in the raw materials sector and gain the experience they need to thrive.

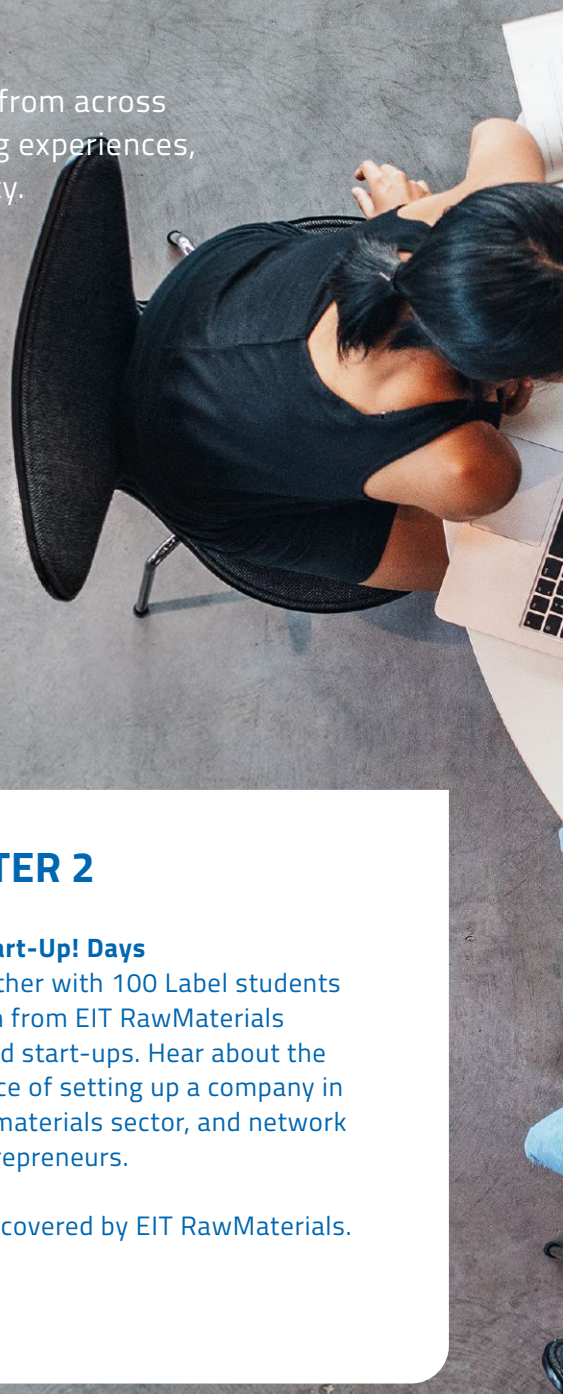
These exclusive events bring together EIT-Labelled students from across the Master School, and form the basis of your shared learning experiences, making you a full member of the EIT RawMaterials community.

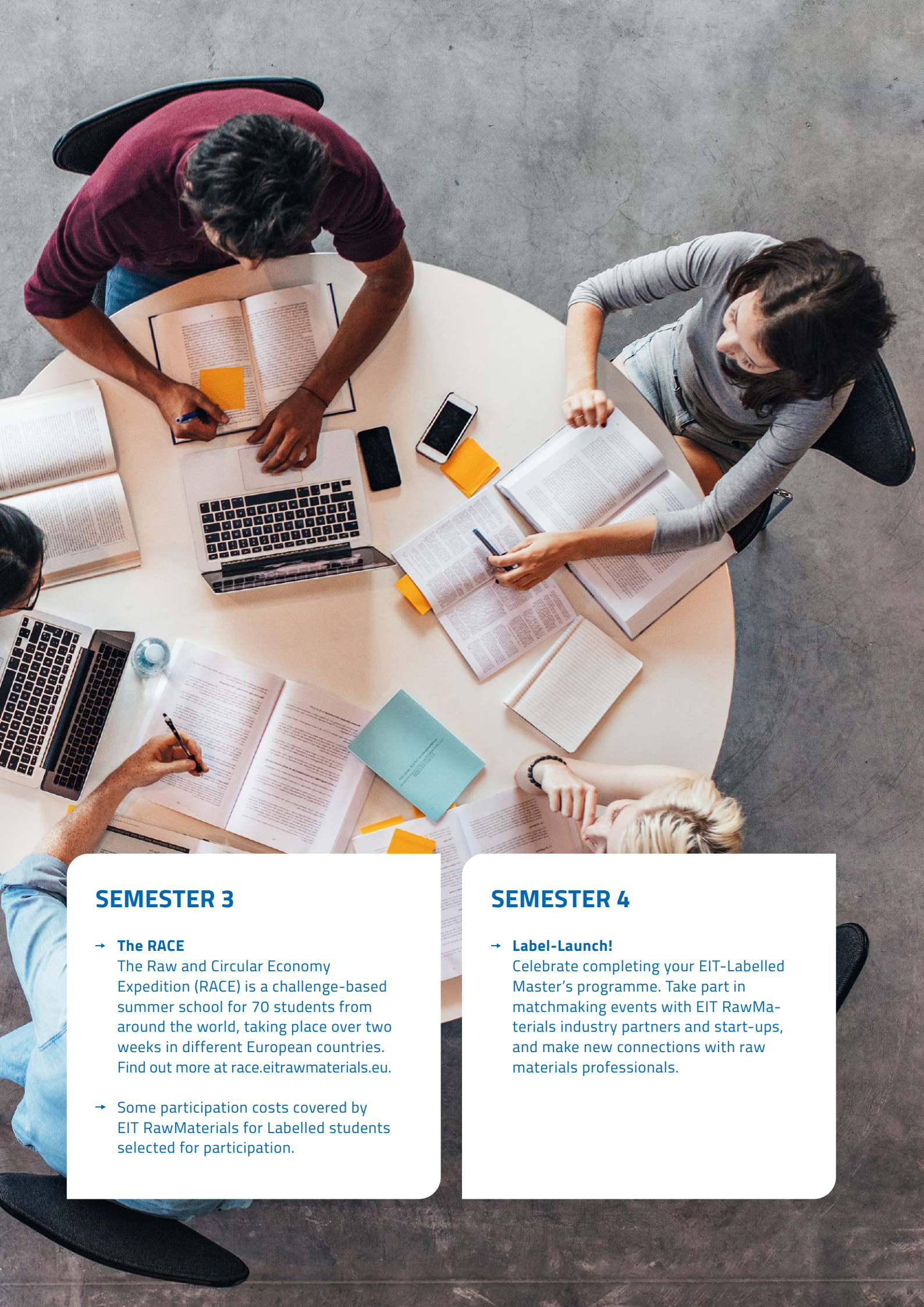
SEMESTER 1

- **Label Induction Days**
Meet the EIT RawMaterials Academy and learn how to get involved in our community and access the many opportunities on offer. Sign up for EIT RawMaterials Alumni and start growing your network.
- Vote for your representative on the Label Student Board, or stand for election!

SEMESTER 2

- **Label Start-Up! Days**
Get together with 100 Label students and learn from EIT RawMaterials supported start-ups. Hear about the experience of setting up a company in the raw materials sector, and network with entrepreneurs.
- All costs covered by EIT RawMaterials.





SEMESTER 3

→ The RACE

The Raw and Circular Economy Expedition (RACE) is a challenge-based summer school for 70 students from around the world, taking place over two weeks in different European countries. Find out more at race.eitrawmaterials.eu.

- Some participation costs covered by EIT RawMaterials for Labelled students selected for participation.

SEMESTER 4

→ Label-Launch!

Celebrate completing your EIT-Labelled Master's programme. Take part in matchmaking events with EIT RawMaterials industry partners and start-ups, and make new connections with raw materials professionals.

Do you have a raw materials business idea?

EIT RawMaterials offers a range of support for individuals and companies with innovative business ideas, including:

Lab2Market

- A three-term entrepreneurship training programme, exclusively for EIT Label students and graduates. Lab2Market will help you come up with a business idea, create a start-up and connect you with investors and customers. Grants are available for selected participants.

EIT Jumpstarter

- One of Europe's top pre-accelerator programmes, to help you develop your business idea and understand what's needed to create a successful start-up.

EIT RawMaterials Accelerator

- A three-stage accelerator programme to help start-ups with a developed product to bring their solution to the market.

Booster Call

- Financial and network access support for start-ups and SMEs in the raw materials sector.

EIT RawMaterials Alumni

From the moment you join an EIT-Labelled Master's programme in the EIT RawMaterials Academy, you are eligible to join EIT RawMaterials Alumni. This organisation provides a great opportunity to connect with the EIT RawMaterials ecosystem and varied EIT RawMaterials activities, such as business idea competitions, start-ups, professional development courses and Master's and PhD programmes.

It is run by and for its members, who can take part in events, and develop their careers through internships and job offers, networking activities and much more, forming a hub for a diverse range of raw materials students, academics and professionals. Furthermore, EIT RawMaterials Alumni provides you with a connection to the wider EIT Alumni community and alumni events around Europe.





suma

Master Programme on
Sustainable Materials

Master in Sustainable Materials

Awarded the EIT Label in 2016

Sustainable Material Solutions with SUMA

The SUMA is a two-year (120 ECTS) master's programme that provides academic excellence, innovative-driven education, and a sustainability approach in the field of Materials Science and Engineering. It gathers some of the best educational programmes in the field of sustainable materials science and engineering in Europe. Our goal is to educate excellent professionals with the expertise to design and develop more sustainable materials and/or processes to manufacture them, make sustainable choices in materials-selection challenges, and promote the innovation need-

ded to create and tailor new material systems for specific functions. SUMA strongly focuses on circular (eco) design, materials substitution, life cycle engineering and circular economy design, materials processing and recycling, manufacturing and innovation. In this way, we hope to deliver the experts who can provide materials solutions that allow the design of sustainable products and services that ecological and geopolitical challenges in Europe and beyond will require, establishing sustainability and innovation not only as an attitude or cross-sectional tasks but also as fundamental engineering skills.



“As an international student, what I loved most about being able to study in different countries in Europe is being able to interact with lots of students, professors, and people from different walks of life. I loved learning and immersing myself in different cultures and I especially enjoyed working with my colleagues during classes and other EIT events.

— DENISE PAULINE BERNARDO, PHILIPPINES (SUMA)

Double Diploma	<p>Dual Master of Science degree awarded from two of the following universities:</p> <ul style="list-style-type: none"> – Leuven, Belgium – Leoben, Austria – Trento, Italy – Grenoble, France – Milan, Italy <p>EIT Label Certificate</p>
Credits	120 ECTS, 24 months
Language of Instruction	English
Starts in	September
Requirements	<p>SUMA is particularly suited for candidates with a Bachelor's degree in materials science and/or engineering or graduates from mechanical engineering, chemical engineering, physics and chemistry who already have had some courses in materials engineering during their bachelor's programme. All candidates are required to have a Bachelor of Science or Bachelor of Engineering or equivalent, as well as proof of English language proficiency. Candidates must meet the admission criteria of the master's degree programmes of both partner institutions of their chosen track. Please refer to the individual entry university websites for information on admission requirements.</p>
Tuition fees	<p>Fees vary based on programme track and country of origin.</p> <p>Visit www.master-suma.eu/study/#paths and choose an entry and exit university for details on each specific track.</p>
Application Period	<p>Application for the SUMA programme is a multi-step process.</p> <p>Applicants should register on the SUMA website: www.master-suma.eu.</p> <p>For information on the application deadlines per track visit https://master-suma.eu/study/#apply</p>
Scholarships	<p>A number of partial scholarships from EIT RawMaterials of €15,000 per eligible student are usually available. This depends on the programme funding per year. Tuition fees are not included in the scholarship. We encourage applicants to search for scholarships through local and international organisations before applying to our master's programme.</p>

PARTICIPATING UNIVERSITIES

KU Leuven

Belgium

Montanuniversität Leoben

Austria

University of Trento

Italy

Grenoble INP

France

University of Milano-Bicocca

Italy

FOR MORE INFORMATION

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Programme Structure

The Sustainable Materials (SUMA) master's programmes are two-year programmes embedded in the engineering programmes of the participating universities. There are in total 9 tracks, each of which has been awarded the EIT Label. Each track of the SUMA programme consists of one full year at an entry university, followed by a second year at one of the other participating universities.

Visit master-suma.eu to explore the different SUMA tracks and module options.

SUMA MOBILITY YEAR 1 (60 ECTS)

TRACK 1
KU Leuven

Sustainable
Materials Track

TRACK 2
University of Trento
(UniTrento)

Sustainable
Materials Track

TRACK 3
University of
Milano-Bicocca
(UNIMIB)

Materials
Development Track

TRACK 4
Montanuniversität
(MU) Leoben

Sustainable
Metallurgy Track

Topics:

- Materials and processing
- Sustainability and recycling
- Circular (eco) design and life cycle engineering
- Materials substitution and manufacturing



SUMMER SCHOOL ON CIRCULAR ECONOMY



SUMA MOBILITY YEAR 2 (60 ECTS)

1A → Grenoble INP
1B → UniTrento
1C → MU Leoben
1D → UNIMIB

2A → Grenoble INP
2B → KU Leuven
2C → MU Leoben

3A → KU Leuven

4A → KU Leuven

Topics:

- Innovation, entrepreneurship and leadership (30 ECTS)
- Industrial internship (6 ECTS)
- Master thesis (24 ECTS)

Master in Sustainable Materials

Awarded the EIT Label in 2016

PROFESSIONAL PROFILES AFTER GRADUATION

The SUMA master's programme aims at training scientists with a solid background in chemistry and physics, with competences for designing and tailoring new material systems for specific functions, and with a specific view to the sustainability of processes and technologies in the field of material development. The main job opportunities are in industries and research centres in Europe, working on the development and production of functional materials for advanced applications and high technology. Graduates can start a career as highly valued future leaders in positions of responsibility in managing advanced material design, production processes and material qualifying protocols in high-tech firms, material diagnostics and analysis in industries and research centres, and material development projects and scientific research projects in the field of material science and technology innovation.

SUSTAINABLE MATERIAL SOLUTIONS WITH SUMA

The SUMA master's programme aims to train tomorrow's resource engineers in collaborative work in a global world, gathering together some of the best educational programmes in the field of sustainable materials engineering in Europe. The goal is to ensure young scientists obtain a solid background in chemistry and physics, with competences for designing and tailoring new material systems for specific functions, and with a specific view to the sustainability of processes and technologies in the field of material development. SUMA puts a particularly strong focus on innovation, entrepreneurship and leadership and takes a holistic approach to the materials paradigm by exploring circular (eco) design, materials substitution, life cycle engineering and circular economy design, materials processing and recycling, manufacturing and innovation.

ARE YOU A STUDENT WHO IS:

- Interested in earth sciences, mining, materials sciences and engineering?
- Motivated to explore the connection between materials technology and its environmental and socio-economic factors?
- Keen to become entrepreneurial and start your own company?
- Motivated to work closely with industry and research on cutting-edge challenges?

VISIT [MASTER-SUMA.EU](https://www.master-suma.eu)
TO FIND OUT MORE AND APPLY



Programmes

Nine Master's programmes within the EIT RawMaterials Academy hold the EIT Label. Graduates from all EIT-Labelled programmes are awarded a degree from one or more of the participating universities, with an EIT Label Certificate confirming graduation from an EIT-Labelled programme.



AMIR

Master in
Advanced Materials:
Innovative Recycling



AMIS

Master in Advanced
Materials for Innovation
and Sustainability



EMerald

Master in Georesources
Engineering (Innovative
Education in Geometallurgy
and Circular Economy)



MEITIM

Master in Entrepreneurship,
Innovation and Technology
Integration in Mining



RaVeN

Master in
Mining Engineering



SINReM

International Master
of Science in Sustainable
and Innovative Natural
Resource Management



SUMA

Master in
Sustainable Materials



TIMREX

Master in
Mineral Exploration

Labelled by:



A body of the European Union



Supported by:



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