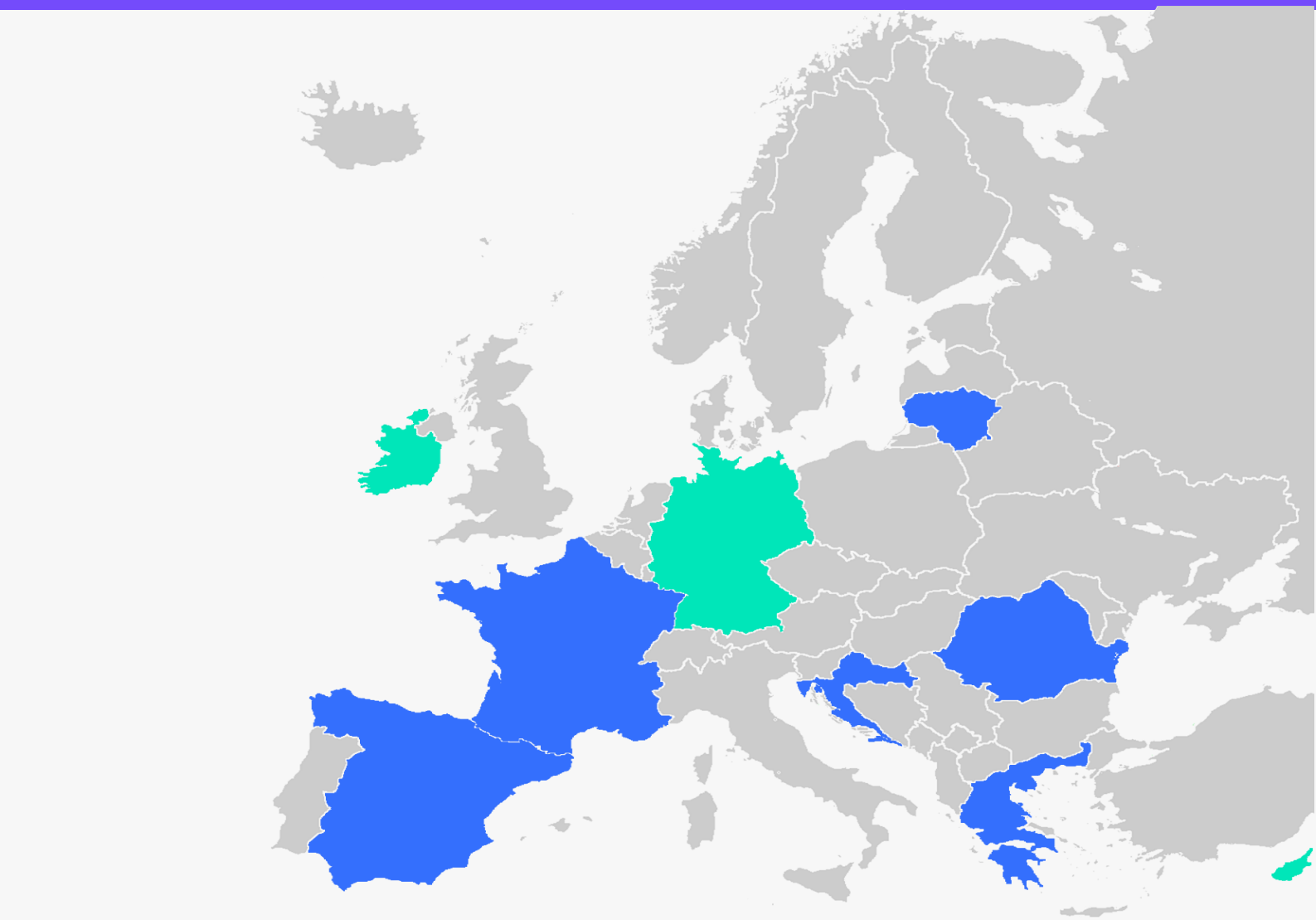
EU CONEXUS Skills Map

A MARKET SURVEY FOR ACADEMIC OFFERS AND COLLABORATION WITH INDUSTRY ↓

Co-funded by the Erasmus+ Programme of the European Union



EU-CONEXUS partners:

- La Rochelle Université, France;
- Agricultural University of Athens, Greece;
- Klaipeda University, Lithuania;
- Technical University of Civil Engineering Bucharest, Romania;
- Universidad Catolica de Valencia, Spain;
- University of Zadar, Croatia.

Associated partners:

- Waterford Institute of Technology, Ireland;
- University of Rostock, Germany;
- Frederick University, Cyprus.

The European University of Smart Urban Coastal Sustainability (EU-CONEXUS) aims at providing the best available knowledge on Smart Urban Coastal Sustainability on a global scale. EU-CONEXUS tackles the most important current social, economic, technological and environmental challenges impacting coastlines relying on interdisciplinary, trans-sectoral and trans-national approaches of sciences and education. Its academic offer is focused on four interdisciplinary study dimensions: (1) Environment and Biodiversity; (2) Energy and Sustainable Construction; (3) Digital Transformation and (4) Culture, Society, Organisation and Education. The study programmes are based on relevant learning outcomes and aim to cover all types of skills required on the labour market thus contributing to competitiveness and economic growth at large. EU-CONEXUS wants to educate a young generation of decision-makers, innovators, researchers and entrepreneurs in a way that enables them to find adequate holistic solutions to the complex societal challenges that nowadays confront our environment, society and economy.

EU-CONEXUS Skills Map in Smart Urban Coastal Sustainability

One of the main objectives of the educational programmes of EU-CONEXUS is to prepare students to integrate into the labour market. The identification of skill gaps and future demand of the labour market together with industrial partners and other relevant stakeholders on Smart Urban Coastal Sustainability (SUCS) sectors is a key prerequisite to develop EU-CONEXUS academic offers for higher education and vocational training. To identify, An EU-CONEXUS working group identified 13 fields of required professional and soft skills, competencies that employees are expected to have and that are connected to the transversal topic of Smart Urban Coastal Sustainability (SUCS). A corresponding questionnaire was adapted to each of the following sectors:

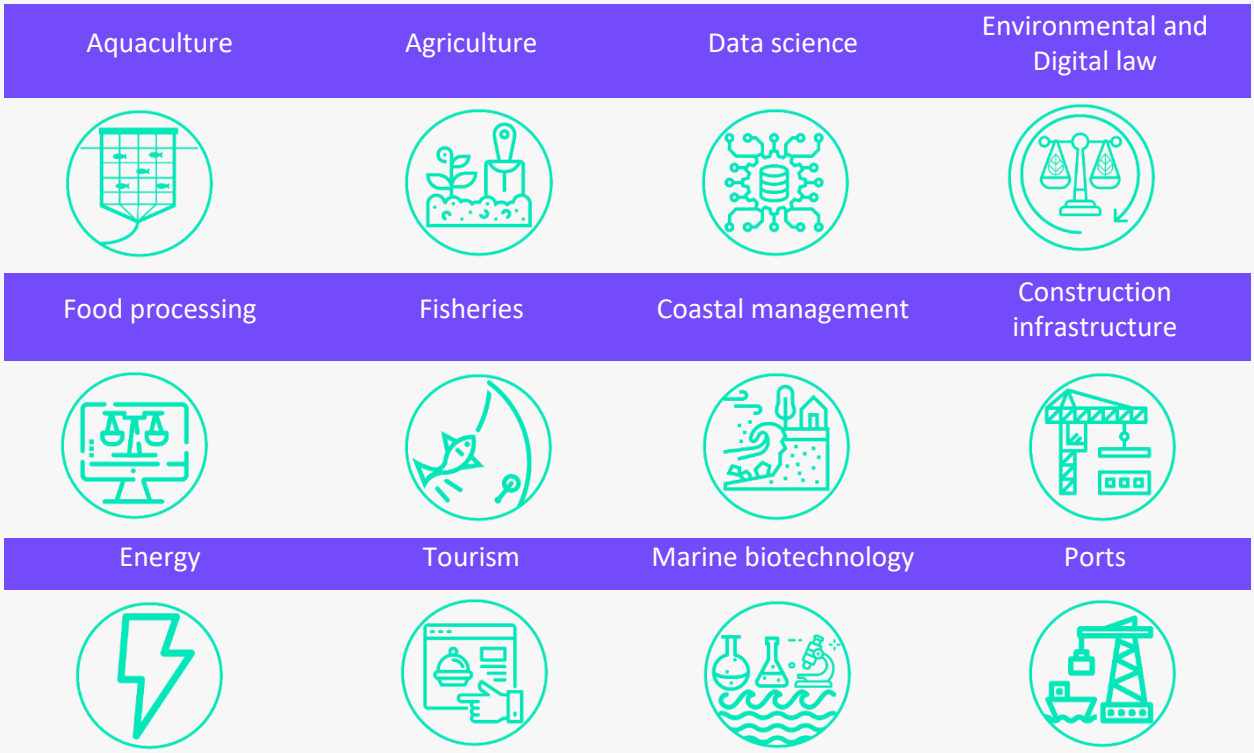


Figure 1. Sectors of Smart Urban Coastal Sustainability for the Skills map

Consequently, a list of relevant stakeholders from public and private sectors, active in the field of Smart Urban Coastal Sustainability in Europe and worldwide, was developed. The first survey was conducted in May-September 2020; and 11 interviews were conducted in October-November 2020. Overall, the development of the Skills map took place during November 2019 - January 2021.

More than 300 stakeholders have participated in the survey, coming from:

- EU-CONEXUS first members countries (Croatia, Greece, France, Lithuania, Romania, Spain);
- other European countries like Germany and United Kingdom;
- outside Europe, adding an international dimension to the results (ex USA, Canada, Chile).

The Skills map results are based on 304 complete and validates responses.

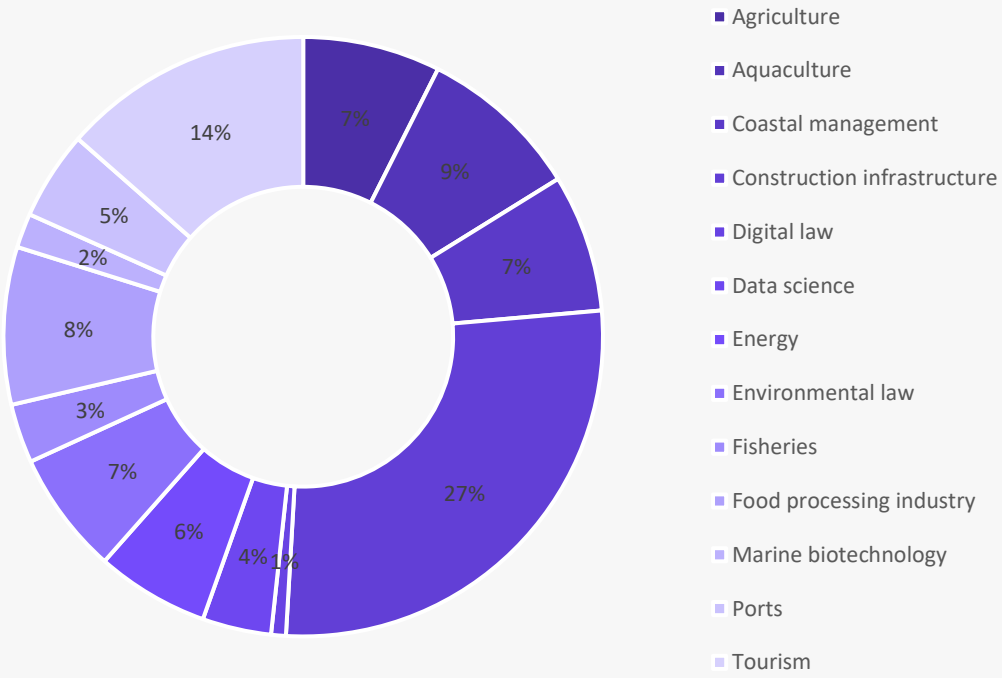
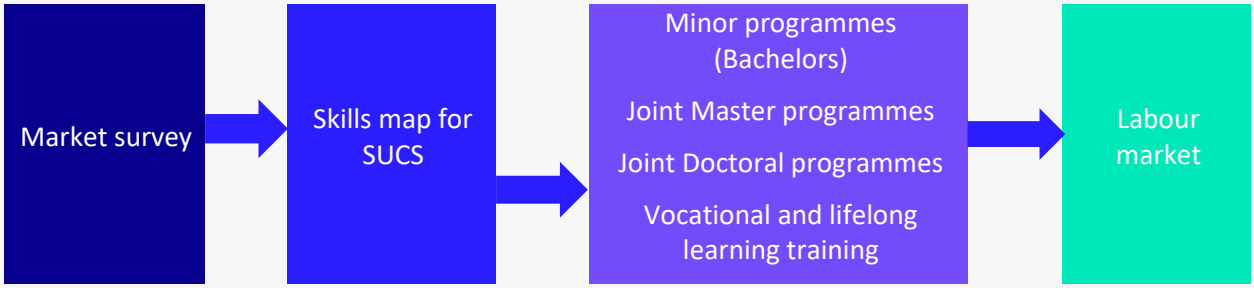


Figure 2. Distribution of responses among the SUCS sectors

The survey results will be used for the development of the EU-CONEXUS study offer and activities for students like project-based learning, mentoring activities, work-placements and internships.



Continuity.

Skills Map questionnaires will be conducted repeatedly in the future in order to account for the evolving needs of the industry for education and training. The results will be disseminated within the EU-CONEXUS community and will be publicly available on our website. For future editions of the Skills Map we will use several channels like stakeholder events, social-media accounts and our platforms to get more input from the industry and other stakeholders on their needs and perspectives.

Skills Map Survey Results - General Skills

Team playing, co-working	92%
Able to use basic software packages, including email, word processing and spreadsheets	90%
Able to work as part of a multidisciplinary team	89%
Able to follow and maintain high quality of work and high productivity	89%
Able to communicate effectively with customers and collaborators	87%
Able to represent himself and the results of his work effectively	86%
Able to do the work-related tasks in an appropriate way, while taking both personal and others' rights and obligations into account	86%
Able to work independently with little or no supervision	83%
Able to set goals and plan the execution, evaluate tasks and organize time schedule	83%
Ability to find and analyse information from various sources & Able to analyse and interpret various information and perspectives	83%
Able to scrutinize the assumptions beyond the data and draw valid conclusions with critical thinking	81%
Able to understand or feel what another person is experiencing from within their frame of reference and react adequately towards them (empathy)	79%
Able to stay up-to-date with new innovations in the sector	79%
Able to prepare and present oral and visual presentations, prepare written reports, conveying ideas clearly, eloquently, and supported by arguments in English and/or in mother tongue.	78%
Commitment to the conservation of the environment	78%
Able to supervise, manage and lead working groups	76%
Initiative and entrepreneurial spirit	75%
Crisis management	72%
Able to innovate, by creating new ideas, services, products or organizational patterns	70%
Ability to act with social responsibility and civic awareness & Knowledge of job safety and health	70%
Able to influence and persuade (in a sense of achieving own goals, i.e. affecting the behaviour of others through oral communication or another kind of communication)	67%
Understanding of principles of quality assessment, control and management	66%
Able to budget and use financial and cost calculation tools	65%
Natural hazards and risk management	62%
Able to work in an international context	59%
Able to project budgeting and knowledge of funding opportunities	58%
Knowledge of research ethics, esp. collecting and handling the sensitive data	56%
Able to apply the principles of innovation management	54%
Strong numeracy skills including statistical analyses	48%
Knowledge of proper sampling protocols and keep accurate records	47%
E-business	46%
Knowledge of business management and market	43%
Industry related software basic knowledge & skills	40%
Knowledge of intellectual property	40%
Able to program in general-purpose computer languages such as Python or Java	20%

Skills Map Survey Results - Sector Skills

SECTOR SKILLS	The most important skills	The least important skills
AGRICULTURE	Agricultural water management Soil and Plant nutrition Animal and Vegetal diseases Organic agriculture Conservation of native breeds and plants	Reproductive biotechnology in livestock Biosensors in agriculture and food quality and safety chain Agricultural saline stress Livestock diversity Gut methanogens in ruminants
AQUACULTURE	Aquaculture principles systems and practices (100%) Fish husbandry (100%) Fish nutrition Biology and physiology of aquatic animals Fish feeding protocols Environmental monitoring	Boatmasters' certificates GIS skills SCUBA diving
COASTAL MANAGEMENT	Marine ecology and biology Definition and management of marine protected areas Knowledge of computer technologies Holistic understanding of the coastal zone management through integration of innovative technologies, adaptation and mitigation Knowledge of basic sampling techniques of water column, organisms, sediment and sea-bottoms	Microbiology A willingness to take on the challenges of seagoing research and life on a ship Contemporary tourism trends Python or Matlab Skills Marketing strategies and brand management Boatmasters' certificates
CONSTRUCTION INFRASTRUCTURE	Construction techniques for durability and efficiency Innovative materials for sustainable buildings Performance based design of sustainable buildings Innovative materials for sustainable infrastructure Green buildings and low environmental impact buildings	Traffic engineering and traffic safety Multimodal systems of transportation Infrastructure recycle Buildings demolition Infrastructure demolition
DATA SCIENCE	Methods of data collection, preparation and analysis Data visualisation methods and software Big data management and infrastructures Optimisation methods	Scripting languages (python) Machine learning and deep learning Geographic information systems and methods Complex networks analysis Semantic web (methods and tools)
ENERGY	Energy efficient buildings and systems Energy Distribution Systems Photovoltaic powered systems	Hydrokinetic powered systems Food energy water systems Liquefied Natural Gas (LNG) engineering Wave energy systems Biofuel Technology

FOOD PROCESSING	Hygiene and safety of food Main techniques of food preservation Physical, chemical, and microbiological hazards that may occur throughout the entire process of processing the different products Food safety	Use of by-products IoT for food industry Management of animal by-products not intended for human consumption (ABPS) Marine origin components
PORTS	Ability to establish and maintain effective working relationship with stakeholders Knowledge of computer technologies Customer service skills and IT Port management	GIS skills Ability to prepare for autonomous transport (unmanned vehicles and vessels) service Developing and operation of bunkering facilities Marine Economics and Strategic Planning skills
TOURISM	Communication and creativity Hospitality Principles and aims of sustainable tourism Contemporary tourism trends	Experimental design and research methodologies Marine Ecology Demographics of coastal areas Oceanography
FISHERIES	Marine ecosystem knowledge Key principles for data collection Fish cycles Fisheries legislation and regulations	GIS skills Morphometric software Fisheries heritage
DIGITAL LAW	Mastering the principles and rules of the GDPR Provide legal assistance and advice Able to understand the stakes, the assets and the limits of digital tools	Advising innovative companies in the protection of their creation Mastering the institutional, administrative and judicial environment of the digital environment (internal and European)
MARINE BIOTECHNOLOGY (less than 10 responses)	Experimental design and research methodologies Data management including big data	SCUBA diving
ENVIRONMENTAL LAW (less than 10 responses)	Understanding the fundamentals of environmental law To know the actors of environmental law Protection of natural areas	