LEARNING OUTCOMES

DeepTech and Innovation Online School

Type of Programme: Online training course, Professional development course, Non-formal learning contexts
Course Title: DEEPTECH AND INNOVATION
Country of delivery: Online training course
Institution(s)/organisation(s) delivering the training, countries: in attached the detailed course syllabus - School Program
Lecturers: Academics and Business professionals (List of the Lecturers attached in the detailed course syllabus - School Program)
Course Status: Elective
ECTS credits: 2
Pre-Condition: None
Course objective The objective of this course is to educate trainees for novel DeepTech areas, and especially related to advanced materials and manufacturing, artificial intelligence and machine learning, biotechnology, sustainable green energy and clean technologies, and also to improve Innovation and Entrepreneurships competencies. Based on the EntreComp conceptual model, https://publications.jrc.ec.europa.eu/repository/handle/JRC101581, the course will focus on: Ideas & Opportunities; Resources; Into Action, related to Deep Tech Materials and Manufacturing Talent Development for an Improved EU Economy and Climate, from both the professional and scientific aspects. Objective of the training is to support integration of deep tech fields in course curricula, but also to support deep tech teams and start-ups and to facilitate deep tech innovations going to market.
Learning Outcomes Based on the EntreComp conceptual model https://publications.jrc.ec.europa.eu/repository/handle/JRC101581 and after finishing this course, students should be able to: Identify and seize opportunities to create value by exploring the social, cultural and economic landscape. Identify needs and challenges that need to be met. Establish new connections and bring together scattered elements of the landscape to create opportunities to create value. Develop several ideas to create value, including better solutions to existing and new challenges. Explore and experiment with innovative approaches. Combine knowledge and resources to achieve valuable effects. Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it. Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment. Reflect on how sustainable long-term social, cultural and economic goals are, and the course of action chosen. Reflect on their needs, aspirations and wants in the short, medium and long term. Recognise the possibilities to get the competences needed at any stage, including technical, legal, tax and digital competences through suitable partnerships, networking, outsourcing and crowd-sourcing. Understand economic and financial concepts, of turning an idea into a value-creating activity. Inspire and enthuse relevant stakeholders. Get the support needed to achieve valuable outcomes. Demonstrate effective communication, persuasion, negotiation and leadership. Initiate processes that create value. Work together and cooperate with others to develop ideas and turn them into action. Network. Use any initiative for value creation as a learning opportunity. Learn with others, including peers and mentors. By participating in this course the participants are also eligible to join the EIT RM Alumni

https://alumni.eitrawmaterials.eu/ and this way they stay updated with upcoming events and courses from the EIT side, including the circulation of lots of job and internship offers.

Syllabus – course content

Theoretical lectures with practical examples

Shallow Tech vs Deep Tech. Deeptech Team Dynamics. Practical Implementation of Deep Learning Solutions in Industry. How to Design Your AI Initiative Around the Business Value. Financing Deeptech.

Innovation in Higher Education Institutions (HEIs): HEInnovate.eu concepts and case studies. Leveraging EU programmes for innovation and entrepreneurship. How to foster a digital culture in supporting innovation and entrepreneurship. How to integrate research, education and industry activities to exploit new knowledge. HEI mentoring schemes. Entrepreneurship & Innovation Ecosystems. Open Innovation: Challenges and Opportunities. University Research Parks.

From Idea Generation to New Enterprise Creation: Supports in HEIs and in general. Entrepreneurship education in engineering education: evidence from the research. Pitching for Support: focus on the customer, end user, funder. Innovation & Entrepreneurship - From Design Thinking to Funding. Support to move from idea generation to business creation. Differences between the innovation perceptions at university and in companies/institutes, based on experiences. Design Thinking as Problem-Solving Methodology.

How reference architectures are shaping the future of automation. Smart Materials. Artificial Intelligence (AI). AI-driven innovations in manufacturing and business. Supercomputing and Big Data - Industry Use Cases. Practical Application of Machine Learning (ML) in the Development of New Products and Services. AI, Big Data and Health. AI as a Catalyst for Business Transformation. Internet of Things (IoT). Application of Internet of Things (IoT) – Case Studies.

Additive Manufacturing as a Digital Technology to support Flexible Manufacturing. The Fuel Cell: An Energy Converter of the Future. Digital Transformation and Smart Manufacturing. Smart Manufacturing at STMicroelectronics Tours, France. Green energy technologies of the future. Critical Raw Materials for a Resource Efficient Circular Economy. Advanced Technologies in European Mobility Industry.

Practical exercises

Pitching for support. Business communication during networking.

Literature

Prepared learning materials, uploaded to the shared Google folder during the school

Number of active classes	Theoretical classes: 31	Practical classes: 30

Teaching methods

Theoretical lectures with practical examples and practical pitching excersices and networking sessions.

Competency assessment method (maximum number of points 100)

Pre-final testing	points	Final competency assessment	points
Pitching for support	30	Google test	70