

# Presentation of SEnDIng project

Building the Data Science and IoT skills and competences of IT professionals

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# Project overview

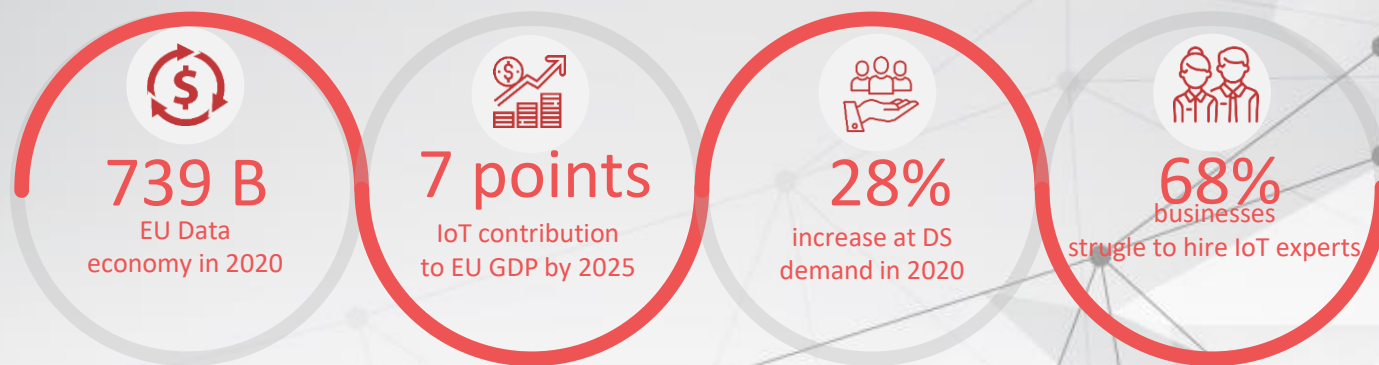
- **Program:** Erasmus+ KA2: Cooperation for innovation and the exchange of good practices - Sector Skills Alliances
- **Call ID:** EACEA-04-2017
- **Lot:** Lot 2, SSA for Design and Delivery of VET
- **Project Number:** 591848-EPP-1-2017-1-EL-EPPKA2-SSA
- **Grant Agreement Number:** 2017-3184/001-001
- **Project Coordinator:** University of Patras
- **Duration:** 36 months
- **Number of Partners:** 12
- **EU grant:** 982.537 €
- **Start Date:** 1<sup>st</sup> December 2017
- **End Date:** 30<sup>th</sup> November 2020

# Consortium



# DS and IoT scenery

Rapid and continuous evolution of Data Science (DS) and Internet of Things (IoT) technologies with applications in many industries



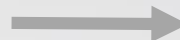
# The challenges



Variety of the economic sectors  
exploiting IoT and DS



Diversity of technical options  
available in both fields



Diversity of end users

**Challenges faced by  
stakeholders in the value chain  
of education and training**

- IT professionals in their career orientation
- Organizations designing training programs at several educational levels
- Businesses as recruiters of IT professionals

# The problem

- 1 The current DS and IoT training programs do not match the real needs of enterprises.
- 2 The current DS and IoT training programs are only technical-oriented and do not commonly provide the learners with transversal skills.



# SEnDIng objectives



- Address the **skills' gap** of ICT professionals in the DS and IoT domains
- Contribute to the **increased demand** of economic sectors other than ICT (e.g. banking, energy, logistics) for highly-qualified DS and IoT professionals
- Provide the DS and IoT professionals with skills and competences, that are **transferable** and **recognized** among European countries
- Make the vocational trainings more relevant to the **actual needs of the labor market**

# Target Groups

- IT professionals and associations
- VET providers
- Certification bodies
- Higher Education Institutes
- Companies & SMEs
- Policy-makers





# Main results






- A reference scheme of competences, skills, knowledge, and proficiency levels for DS and IoT professionals.
- Three modular learning outcomes-oriented vocational curricula and training content for DS, IoT and transversal skills.

# Work Breakdown

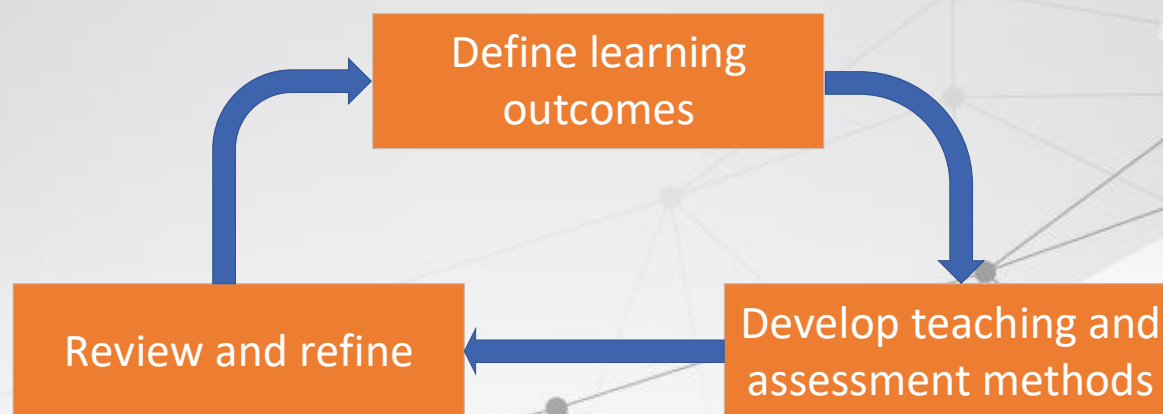


# SEnDIng curricula key characteristics

-  **Multi-disciplinar.** The modules developed cover both technical knowledge and skills at DS and IoT domains as well as transversal skills and competences.
-  **Modular.** For each domain, the curriculum is separated in educational modules and training units (Introductory, Core, Advanced).
-  **Learning outcomes-oriented.** Knowledge, skills and competences that the learners will gain at the end of each module.

# Curriculum development process

- ① Define curriculum goals and design learning outcomes.
- ② Develop teaching methods and forms of assessment.
- ③ Review and refine the curriculum.



# Design of learning outcomes

- Macro level design (definition of curricula learning outcomes)
  - Desktop research for the definition of draft learning outcomes
  - Validation of draft learning outcomes among SEnDIng partners and industry key experts in the respective fields
  - Survey among 79 ICT European companies (including C-level representatives)
- Micro level design (definition of each training unit's learning outcomes)

# Module description

- ① Objectives
- ② Learning outcomes
- ③ Content
- ④ Learning methodologies
- ⑤ Assessment methodologies
- ⑥ Duration
- ⑦ Pre-requisites



# The SEnDIng training

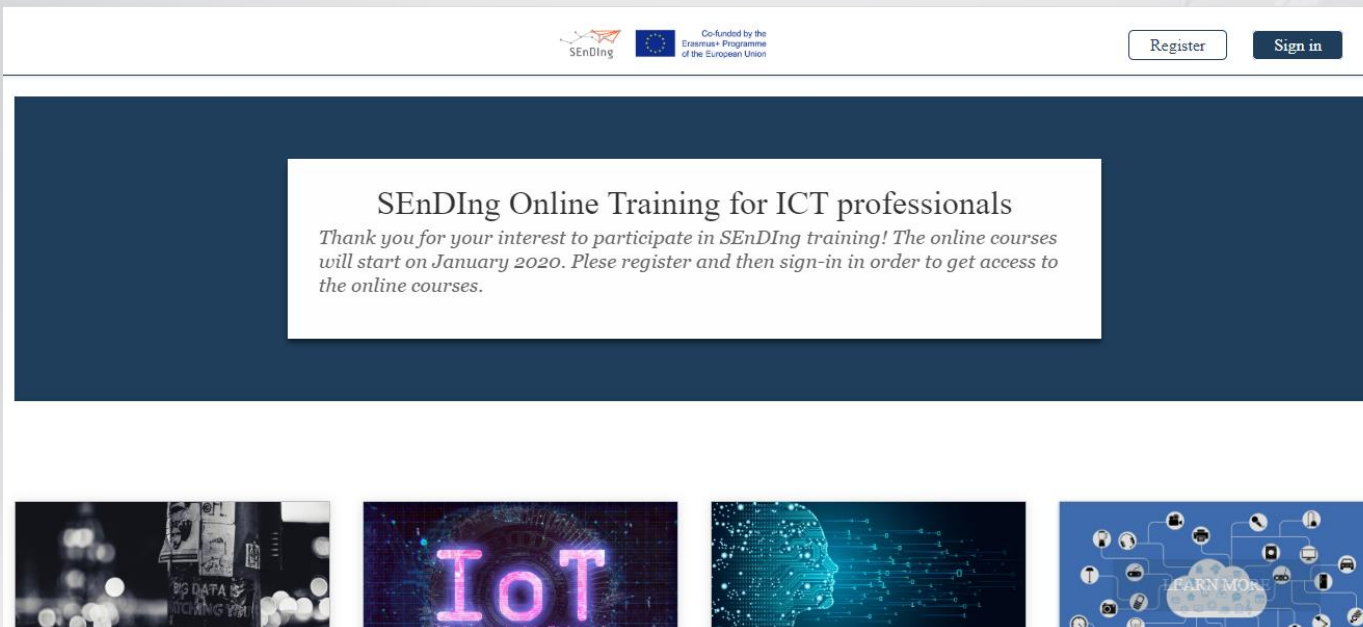
- It runs from January 2020 to August 2020 in three phases:
  - Online training
  - Face to face training
  - Work based learning
- Certification exams
- An expression of interest for participation in the training was published on September 2019.

# Trainees

- Trainees are coming from SEnDIng partners, ICT companies, and companies involved at other sectors with DS and IoT applications
- Totally 207 professionals have been selected to participate in the training coming from Greece, Bulgaria and Palestine
  - However the access to the online courses is open to everyone
- Sectors: ICT, Energy, Education, Utilities, Finance, Public sector

# Online training

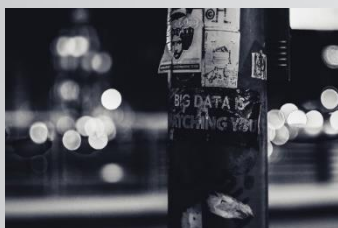
SEnDIng MOOCs: <http://mooc.sending-project.eu/>



The screenshot shows the SEnDIng MOOC website. At the top, there is a header with the SEnDIng logo, the European Union flag, and the text "Co-funded by the Erasmus+ Programme of the European Union". To the right of the header are two buttons: "Register" and "Sign in". Below the header is a large dark blue banner with a white text box in the center. The text box contains the following text: "SEnDIng Online Training for ICT professionals", "Thank you for your interest to participate in SEnDIng training! The online courses will start on January 2020. Please register and then sign-in in order to get access to the online courses." Below the banner is a row of four small images: a blurred image of a person's face, a glowing "IoT" (Internet of Things) logo, a glowing blue head profile with circuitry, and a network diagram with the text "LEARN MORE".

# Online training - Data Science

## Introduction to Data Science (DS-EM1)



## Applied Machine Learning (DS-EM2)



## Python for Data Science (DS-EM3)



## Storing and Retrieving data (DS-EM4)



## Statistics for Data Science (DS-EM5)



## Data Visualization (DS-EM6)



# Online training - IoT

## Introduction to IoT (IoT-EM1)



## IoT Security and Privacy (IoT-EM4)



## Architectural Design and Applications in IoT (IoT-EM2)



## IoT Devices (IoT-EM5)



## IoT Communication Technologies (IoT-EM3)



## IoT Business Value (IoT-EM6)





# Face to face training

- It will run in Athens, Sofia and Nicosia during the second half of March 2020.
- Aims to build transversal skills.

**Effective communication and presentation (TS-EM1)**



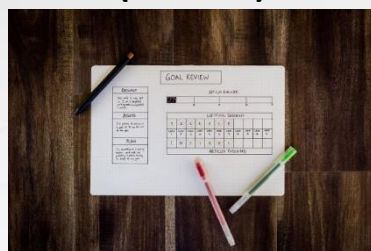
**Change management (TS-EM2)**



**Team working (TS-EM3)**



**Goal setting (TS-EM4)**



**Creative thinking (TS-EM5)**





# Work based Learning

- It will run at the companies/organizations whose employees participate in the training
- Expected to start on April 2020
- At least 1 in-company trainer/mentor per company (depending on the groups of employees/trainees)
- 1 in-company supervisor per company
  - This person can be the same with the in-company trainer/mentor depending on the size of the company and the number of trainees

# Work based Learning - Preparation

- Communication with companies for the assignment of supervisors and in-company trainers'
- Development of the training guide (list of tasks that need to be trained, schedule, administration information, etc.)
- Training of in-company trainers/mentors

# Training of in-company trainers/mentors

- 3-4 hours training
- On-line training
- It will run at the end of March 2020
- Training on the training and monitoring procedures followed during work based learning

# Work based Learning - Implementation

- Support and individual coaching to in-company trainers by the training providers
- Communication between the training providers and the companies (in-company trainers, supervisors), via phone, e-mail or visits at the company, at least twice per month
- Monitoring
  - Attendance sheets
  - Diaries filled by trainees (weekly basis) and in-company trainers (monthly basis)
  - Final Report per trainee filled by in-company trainers and/or supervisors

# Feedback and learning program assessment

- How do you evaluate the program?
- What do you like?
- What can we improve?
- Any comments...

Please, invest some time to fill out the questionnaires at the end of the workshop 😊 !

# Thank you!

For further information please contact



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<http://sending-project.eu>

