

# Presentation of SEnDIng project

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

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# Project overview

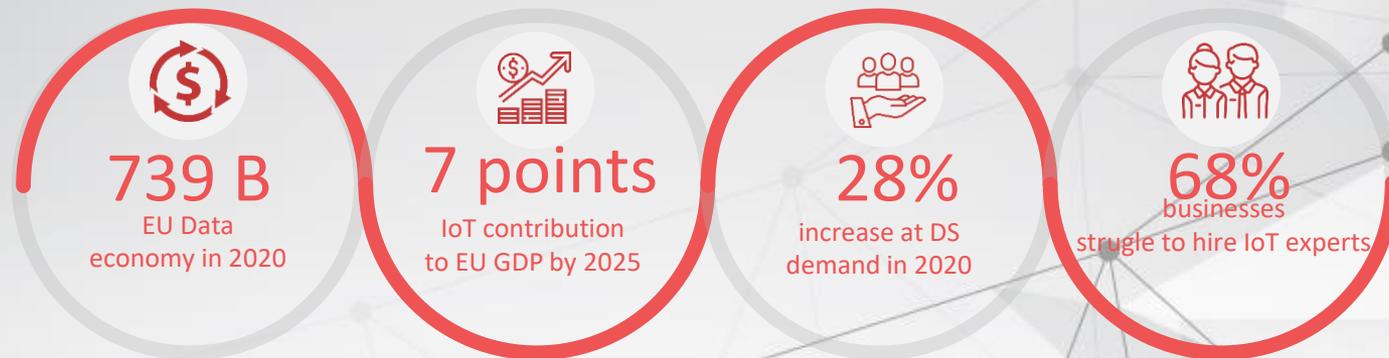
- **Program:** Erasmus+ KA2: Cooperation for innovation and the exchange of good practices - Sector Skills Alliances
- **Call ID:** EACEA-04-2017
- **Lot:** Lot 2, SSA for Design and Delivery of VET
- **Project Number:** 591848-EPP-1-2017-1-EL-EPPKA2-SSA
- **Grant Agreement Number:** 2017-3184/001-001
- **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



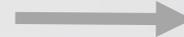
# The challenges



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

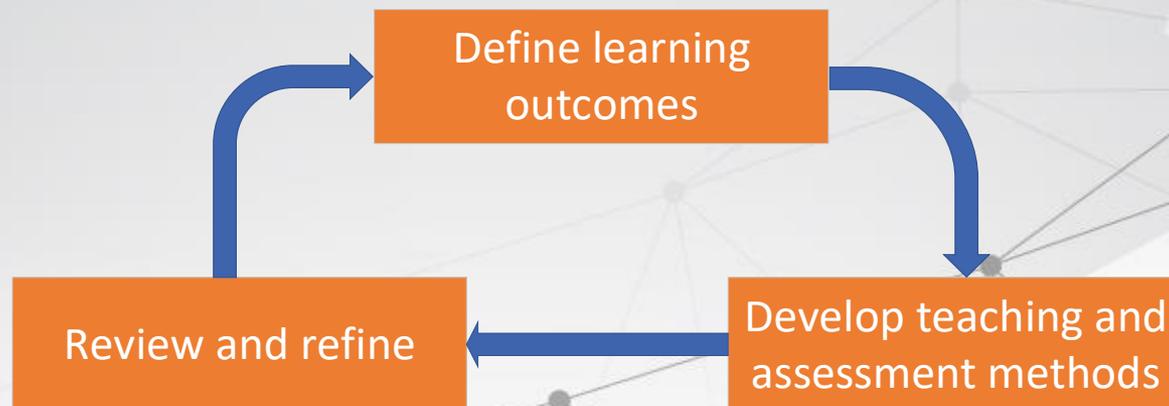


# SEnDIng curricula key characteristics

-  **Multi-disciplinary.** 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/>



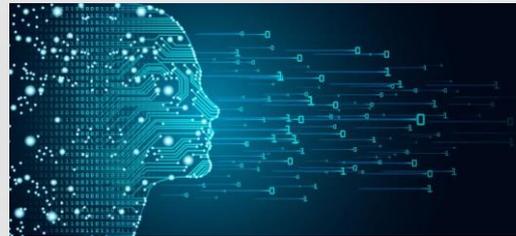
The screenshot shows the SEnDIng MOOC website interface. At the top, there is a navigation bar with the SEnDIng logo, the European Union flag, and the text "Co-funded by the Erasmus+ Programme of the European Union". To the right of the navigation bar are two buttons: "Register" and "Sign in". Below the navigation bar 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" followed by "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 holding a sign that says "BIG DATA", a glowing "IoT" logo, a blue image of a human head profile with digital data points, and a blue image with various icons and a "LEARN MORE" button.

# 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)

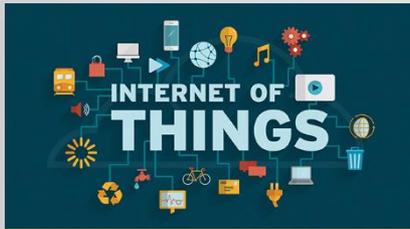


## Data Visualization (DS-EM6)



# 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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