



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



**Project:** Network of Competence on Internet of Things  
[NEON]

**Project ID:** 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP

**Work Package 7:** Dissemination and exploitation of the project  
outcomes

**Title:** D7.5 Report on yearly webinars (hosted in turn  
by the HEIs partners) broadcasted to all  
locations

**Lead Organization:** UCU

**Participating  
Organization:** UNI-KLU, UC3M, UNC, UNS, UNMDP, Udelar,  
UCU, INCUTEX, ALASSIO, ALENET, TEAC,  
EYCON, ALLIANSYS SRL, Santex, TELECOM  
ARGENTINA S.A, CONTROLNET S. A., ABM  
ingeniería y sistemas S.R.L., UTE, CONAE.

**Editors:** Matias Miguez, Nicole Imbert, Graciela Corral  
Briones

**Contributors:**

**Disclaimer:**

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|                             |  |  |  |
|-----------------------------|--|--|--|
| Deliverable data            | Work Package and Outcome ref.nr  | WP7 D7.5   |  |
|                             | Title  | Report on yearly webinars (hosted in turn by the HEIs partners) broadcasted to all locations   |  |
|                             | Type   | <input type="checkbox"/> Teaching material      X Event<br><input type="checkbox"/> Learning material      X Report<br><input type="checkbox"/> Training material <input type="checkbox"/> Service / Product   |  |
|                             | Description  | <p>The document provides a resume of the topics presented at the three webinars intended to address the following issues of the NEON project:</p> <p>i) Webinar 1: presentation of the study programs, tips on study engineering targeting enrolled and prospective students (pupils).</p> <p>ii) Webinar 2: presentation of the NoC structure and partners</p> <p>iii) Webinar 3: presentation on new/modernized IoT courses offered by Neon.</p> |  |
|                             | Date   | 14.01.24   |  |
|                             | Language   | English  |  |
| Target groups               | <input checked="" type="checkbox"/> Teaching staff<br><input checked="" type="checkbox"/> Students<br><input checked="" type="checkbox"/> Trainees<br><input type="checkbox"/> Administrative staff<br><input checked="" type="checkbox"/> Technical staff<br><input type="checkbox"/> Librarians<br><input checked="" type="checkbox"/> Industry partners, Higher education authorities |  |  |
| Dissemination level         | <input type="checkbox"/> Department / <input type="checkbox"/> Local <input type="checkbox"/> National<br>Faculty<br><input type="checkbox"/> Institution <input checked="" type="checkbox"/> Regional <input type="checkbox"/> International  |  |  |
| WP Lead Organization        | UCU  |  |  |
| Participating Organizations | UNI-KLU, UC3M, UNC, UNS, UNMDP, UdelaR, UCU.   |  |  |
| Task                        | T7.5 Organize a yearly event (hosted in turn by the HEIs partners) in the form of a webinar broadcasted to all locations to present the study programs, and tips on studying engineering targeting enrolled and prospective students/pupils.   |  |  |

| Revision History |          |                        |                 |                             |
|------------------|----------|------------------------|-----------------|-----------------------------|
| Version          | Date     | Author(s)              | Organization(s) | Brief description of change |
| 1                | 14.12.23 | G. Corral Briones      | UNC             | Draft Report                |
| 2                | 1401.23  | Benigno Rodriguez Diaz | UdeLaR          | Draft Report                |

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## 1. Introduction

As part of the dissemination plan to promote project activities, webinars have been offered and made accessible to a large public that includes students, engineers working in the industry, and academic trainers. The aims of the webinars focused on the presentation of

- Study programs related to IoT, tips on studying engineering targeting enrolled and prospective students/pupils
- The NoC to industry, the public sector, and the academy.
- New developed courses and laboratories to industry and academy

## 2. Objectives of the Deliverable

The objective of this report is to describe the characteristics of the three webinars organized by UNC, UdeLaR, and UMdP. In addition, the results will also be reported in terms of audience and dissemination achieved. Finally, the conclusions are presented.

### First Webinar

The main objective of this webinar was to present to enrolled students the opportunities for academic training on IoT-related topics, offered by institutions of the Neon consortium. The academic offers by the five Argentinian and Uruguayan institutions along with the two European ones were presented in this first webinar.

To assess the interest in the webinar's topics, we show the number of people who received the email invitation and manifested interest in it and the number of participants discriminated by their locations.

The topics addressed were:

- What is IoT, and why is it important for prospective engineers?

A gentle introduction to IoT was presented using daily examples, as shown in Fig. 1.

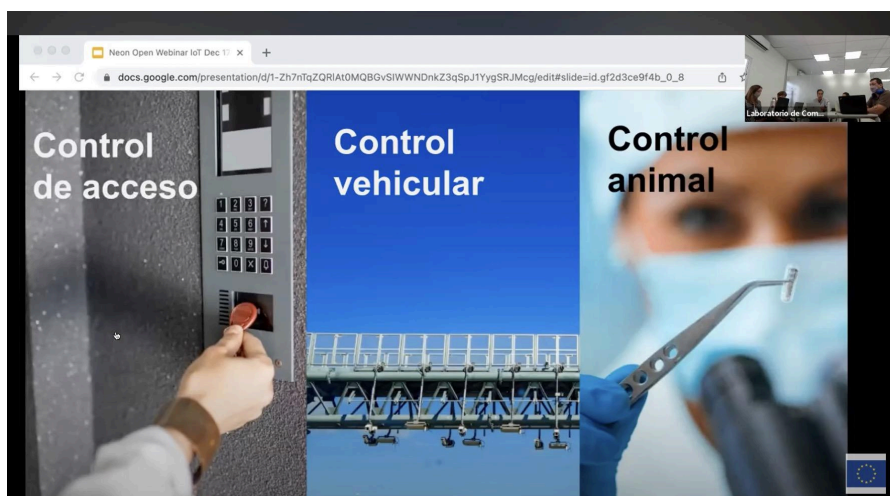


Fig.1 Daily IoT examples

- Academic offer related to IoT at
  - Universidad Carlos Tercero de Madrid. Fig. 2 shows Professor Ana Armada presenting Masters programs



Fig. 2 Master programs at UC3M

- University of Klagenfurt Fig. 3 shows the presentation of Klagenfurt University

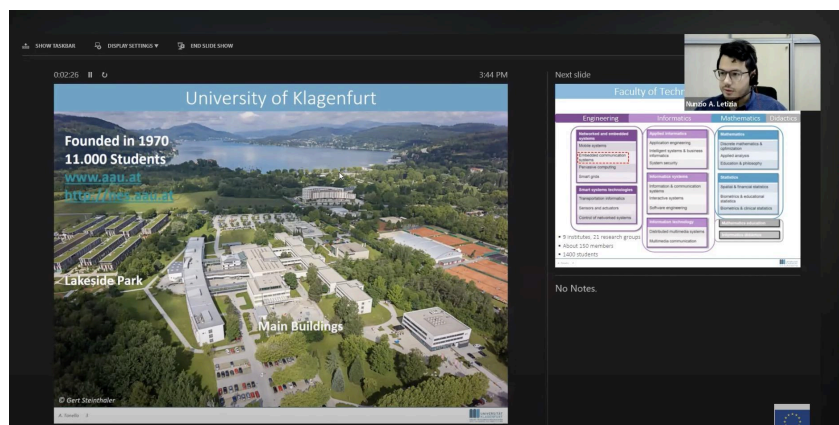


Fig3. Presentation of the University of Klagenfurt

- Universidad de la República de Uruguay. Fig. 4 shows the topics addressed by UdeLaR

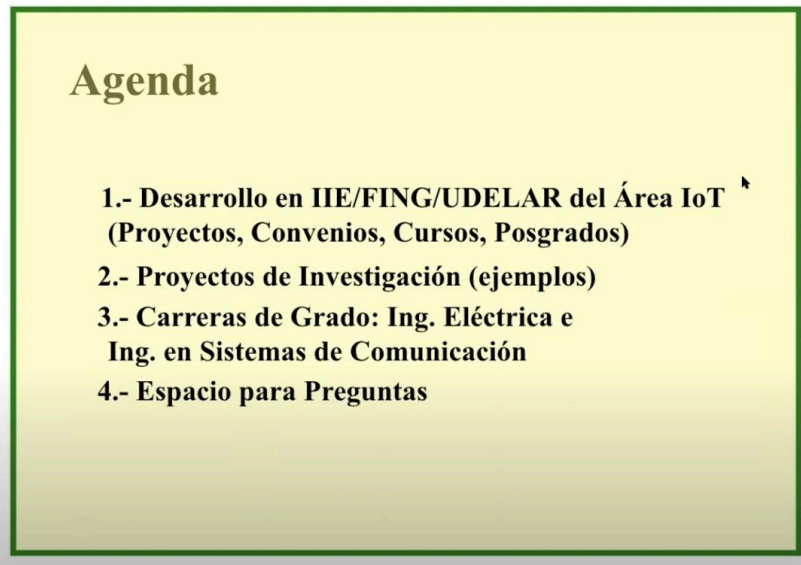


Fig. 4 Agenda addressed by UdeLar

- Universidad Católica del Uruguay. Fig. 5 shows the new laboratory and course offered by UCU



Fig. 5: IoT laboratory and course at UCU



- Universidad Nacional del Sur. Fig. 6 shows the agenda addressed by UNS

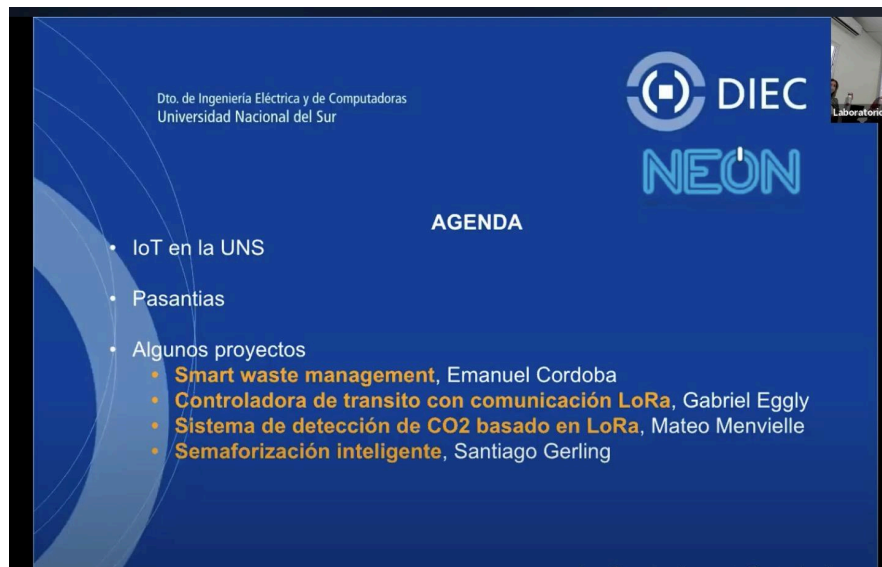


Fig. 6: UNS agenda

- Universidad Nacional de Mar del Plata. Fig. 7 shows new courses related to IoT presented by UNMDP

**Oferta de Cursos Universidad Nacional de Mar del Plata (UNMDP)**

**Curso N°1: Hands on IoT**

adquirir datos — conectar  
almacenar — analizar  
mostrar — actuar — predecir

**Curso N°2: Microwave Circuits Design for IoT**

**Curso N°3: Communications Systems Implemented on SDR**

**GNURadio**  
THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM

2400 USB Source  
Address (Hz): 2400000  
Frequency (MHz): 2.4  
Power (dBm): 0

FFT Filter  
Center Freq (Hz): 2400000  
Bandwidth (Hz): 100000  
Gain (dB): 0

Simple Squasher  
Threshold (dB): 0  
Gain: 1

SDR Sink  
Audio Rate (Hz): 48000  
Sample Rate (Hz): 1000000  
Gain: 0  
Max Decibels: 0

SDR Sink Manual Gain

SDR Sink Manual Gain

Fig. 7 New courses related to IoT at UNMDP

- Universidad Nacional de Córdoba. Fig.8 shows academic offers related to IoT, presented by UNC



Fig. 8 Academic offers related to IoT at UNC

### Webinar Analytics

Invitations to the webinar were sent by email attaching the flyer shown in Annex 1.

We present two analytics to assess the webinar's success. The first one, shown in Annex 2, displays how many people received the email invitation and opened it. An email tracking tool has been used to send and resend the 176 email invitations and report on the number of emails opened. We can conclude that more than 50% of the email invitations were successfully received.

The second analytics, shown in Annex 2, displays the number of registrants, discriminated by their locations, participating in the webinar. The attendance was successful as shown by the number of connecting people at Zoom, which was higher than the people who opened the email invitation.

## Second Webinar

The main objective of the second webinar was to present the structure of the Network of Competence (NoC).

The topics addressed were:

- What is the proposal of the Neon project to strengthen the connection between the academy and local industries?

Dr. Tonello presented the Neon project pointing out the achieved results and the next step to further strengthen the collaboration between academy and local industries, and potentially extend it to European academy and industries.

## Network of Competence on IoT proyecto en resumen

**ERASMUS+ KA02 Project: Capacity Building in Higher Education**

- ❑ Duración: 3 años (2021-2023)
- ❑ Presupuesto: ~1 MEuros
- ❑ Objetivo: Refuerzo de las relaciones entre los centros de enseñanza superior y el entorno económico y social en general
- ❑ Partners:
  - EU
    - Universidad de Klagenfurt (Austria)
    - Universidad Carlos III de Madrid (España)
  - Argentina
    - Universidad Nacional de Córdoba
    - Universidad Nacional del Sur
    - Universidad Nacional de Mar del Plata
    - Incutex SRL
  - Uruguay
    - Universidad de la República
    - Universidad Católica del Uruguay
    - Alassio SA
    - ALUNET SA

Andrea Tonell...

- What is the value Neon project offers and how to become a member?  
Dr. Rodriguez from UdeLaR presented the organizational design of the Network of Competence and explained how to become a member of the NoC.

## 1.- What is Neon?

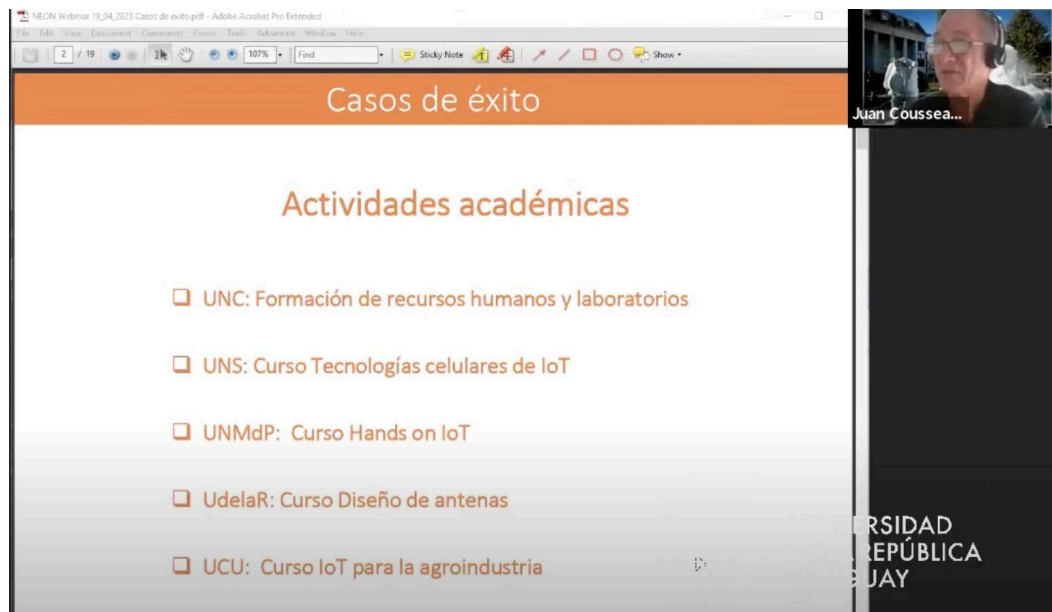
```

graph TD
    Board[Board of directors] --- President[President]
    Board --- Secretary[Secretary]
    President --- VicePresident[Vice President]
    VicePresident --- Industry[Industry outreach committee Director]
    VicePresident --- Technical[Technical committee Director]
    VicePresident --- Educational[Educational and Dissemination committee Director]
  
```

A group of active members making things in the IoT area in a cooperative way

BENIGNO ROD...

- Success stories achieved at the two-year last of the Neon project.  
Dr. Cousseau from UNS presented the results achieved by the five Latin American institutions and the immediate benefits that new members can take advantage of, like open events that gather academies and industries, online courses, and internships.



- Final remarks by Dr. Victor Gil Jiménez from UC3M

**Final remarks**

- How to join the network:
  - [neon-iot.org/index.php/es/](https://neon-iot.org/index.php/es/)
  - [NEON New Member Registration Form / Formulario de Registro de Nuevos Miembros de NEON \(google.com\)](#)
- Next events:
  - [Eventos IoT \(neon-iot.org\)](https://neon-iot.org)



A video feed of Víctor P. Gil (U...) is visible in the top right corner.

### Webinar Analytics

The invitation to the webinar is shown in Annex 4. There were 62 new registered members at the event.

## Third Webinar

This last webinar focused on the new courses and material developed during the three years of the Neon project.

The topics addressed were:

- Presentation of the material developed in the project that is accessible through a GitHub repository.

Dr. Finochietto exposed the teaching methodologies implemented in different courses

## DESARROLLO DE MATERIAL DIDÁCTICO PARA IOT

Elaboración de **material didáctico** para cursos  
 Diseño de **actividades prácticas** y experimentales  
 Construcción de **laboratorios** con equipamiento IoT  
 Desarrollo de **aplicaciones** / librerías software  
 Uso del aprendizaje basado en **proyectos**/problemas  
 Internacionalización del material a través del **inglés**

*21 proyectos de material didáctico*

*15 laboratorios con IoT*

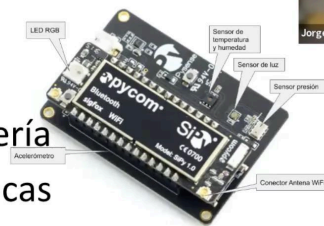
*5 universidades (3 ARG + 2 URU)*

Uso de **web de repositorios** colaborativos

- Courses and laboratories at UNC

## PROGRAMACIÓN CON IOT

Curso de +80 horas de clase  
 Programación básica en Python  
 Primer año de carreras de ingeniería  
 Organizado en 5 unidades didácticas



Nodo IoT: entradas (sensores) y salidas (actuadores)  
 Aprendizaje basado en un proyecto incremental:  
 monitor ambiental del aula de clase

<https://github.com/neon-iot/iotprogramming>

## Laboratorio de SDR con acceso remoto



### Cursos de grado

- Comunicaciones Digitales (alrededor de 60 estudiantes)
- Radios cognitivas definidas por software (5 estudiantes)

### Talleres

- Radio definida por software con Jupyter notebook: comprendiendo la modulación LoRa (6 profesores)
- Radio definida por software con GNU radio: transceptor satelital (proximamente)

- Courses at UdeLaR

## COURSES IN UDELAR

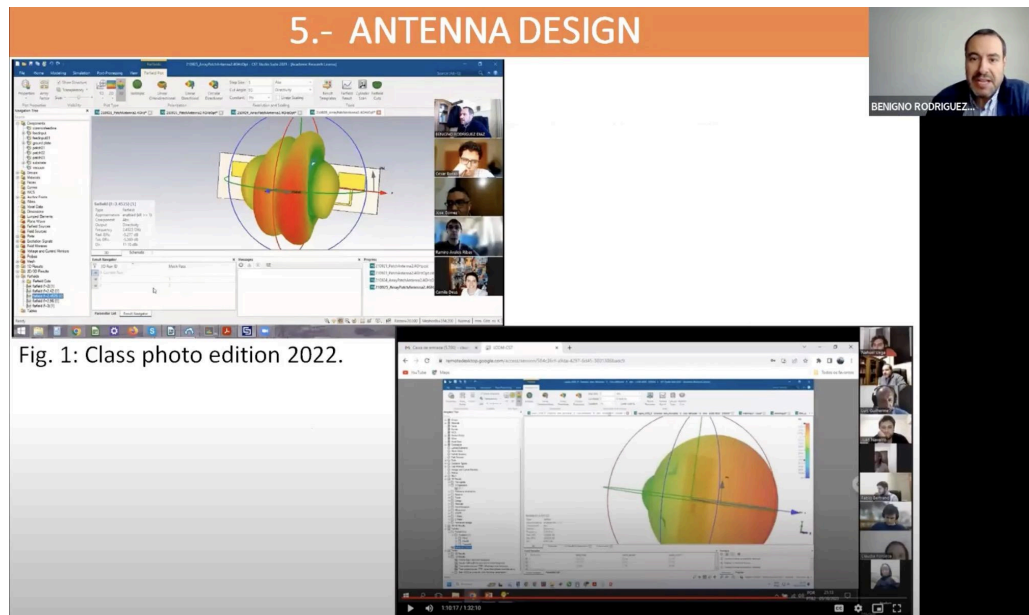
### \* GENERAL COURSES

- Electrónica Fundamental, Electrónica Avanzada I y II, Medidas Eléctricas, Antenas y Propagación, Comunicaciones Inalámbricas, Temas Avanzados en Sistemas Inalámbricos, etc.

### \* CREATED OR IMPROVED COURSES IN THE FRAME OF ERASMUS/NEON PROJECT

- Low Power Digital Design
- Embedded Systems
- Wireless Sensor Networks
- IoT Technology
- Antenna Design
- Manufacture and Measurement of Antennas





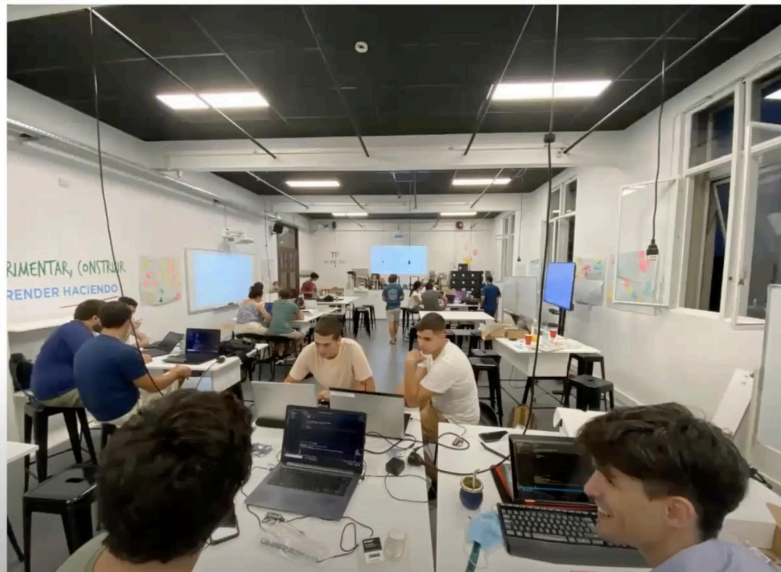
- Courses and laboratories

### New and Improved Courses

- **IoT for Agribusiness**
  - New course developed
  - Two different deliveries, 2022 and 2023
- **Fundamentals of Communication**
  - Already existing course improved
  - New lab work included
  - Two different deliveries, 2022 and 2023
- **Design of IoT and Embedded System**
  - Existing course of Embedded System with new IoT material
  - New hardware and new labs implemented
  - One delivery, 2023

Matias Miguez

## IoT for Agribusiness 2022



- Courses and laboratories at UNS

Courses or modules - UNSic.pdf - Adobe Acrobat Pro Extended

2 / 12 130% Find

### Courses (or modules)

**Electronic Engineering courses**

- ☐ Fundamentals of Communications Systems
- ☐ Introduction to Digital Communications
- ☐ Radiofrequency circuits design
- ☐ Radiolocation and Radars
- ☐ Design of antennas for IoT

**PhD. And MSc courses**

- ☐ Cellular IoT Technologies
- ☐ Wireless communication systems





Courses or modules - UNSc.pdf - Adobe Acrobat Pro Extended

File Edit View Document Comments Forms Tools Advanced Window Help

8 / 12 130% Find Sticky Note

## Design of antennas for IoT

Juan Cousseau

Graduate or advanced undergrad course (elective)

- ☐ Introduction to small antenna design. Basic limits and its constraints. Antenna miniaturization techniques. Aspects and issues of the measurement of small antennas. Small antennas integrated into electronic devices
- ☐ Design examples of integrated small antenna for a medical device using CEM (Computational Electromagnetics) programs. Antenna performance evaluation (gain and reflection coefficient) using GHz transverse electromagnetic cell (GTEM cell) and a VNA.
- ☐ No students selected the elective offered for the first time in 2023.

- Courses and laboratories at UNMDP

**Asignatura optativa y curso de Extensión.**  
**Asignatura Electiva plan 2024**  
**SISTEMAS DE COMUNICACIONES BASADOS EN RADIO DEFINIDA POR SOFTWARE**




- 4 estudiantes de grado cursaron la asignatura durante el primer cohorte. (75% aprobó, 25% abandonó).

Consultas a:

Dr. Ing. Alejandro José Uriz ([ajuriz@fi.mdp.edu.ar](mailto:ajuriz@fi.mdp.edu.ar))

Ing. Juan Alberto Etcheverry ([jaetcheverry@fi.mdp.edu.ar](mailto:jaetcheverry@fi.mdp.edu.ar))

 **Curso Hands On IoT**

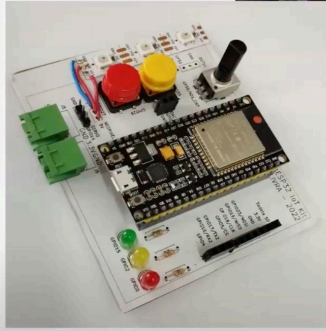
Melisa Kuzman

Curso introductorio sobre Internet de las Cosas (IoT) orientado a estudiantes de ingeniería y público general utilizando metodologías de aprendizaje basadas en proyectos

Nuestro principal objetivo es la enseñanza de tecnologías IoT y sus aplicaciones a través de la experimentación

**Metodología:** presencial o virtual con experiencias de laboratorio remoto

**Material:** <https://github.com/neon-iot/hands-on-iot>

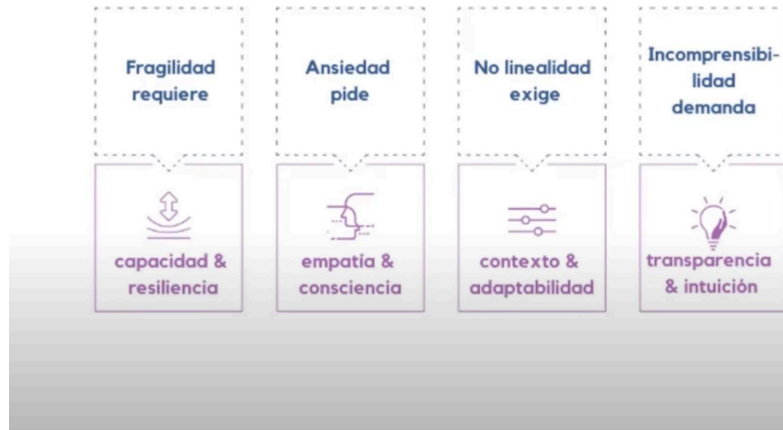


Placa de desarrollo

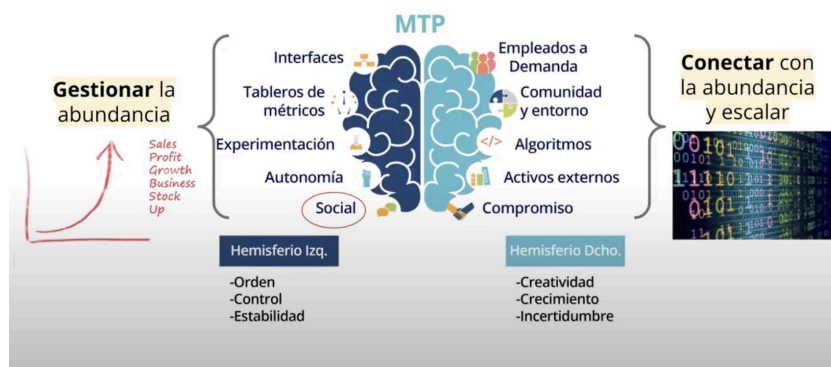
UNIVERSIDAD NACIONAL

- New practices in exponential organizations presented by Gimena Caro from Incutex

### ► Contexto mundial



### El marco de trabajo ExO



### Webinar Analytics

The invitations to the webinar, shown in Annex 4, were sent by email. There were 15 participants at the event.

## 3. Conclusions

The three webinars facilitated the comprehensive dissemination of the project, effectively engaging diverse sectors including academia, industry, public entities, and independent professionals. Moreover, the events served as a platform for enhancing coordination among network members.

## 6. References

[1] NEON project proposal, 2020.

## 7. Annexes:

### 7.1. Annex 1: First Webinar Flyer

**NEON**  
Network of Competence on Internet of Things

**1º WEBINAR INTERNACIONAL SOBRE INTERNET DE LAS COSAS EN UNIVERSIDADES**  
Carreras, Cursos y Proyectos

**Viernes, 17 de diciembre, 2021**  
11:00 - 12:30 hs  
(Huso horario de Argentina y Uruguay: GMT-3)

**MODALIDAD VIRTUAL**

**UNIVERSIDADES INVITADAS**  
Universidad Nacional de Córdoba, Universidad Nacional del Sur, Universidad Nacional de Mar del Plata, Universidad Católica del Uruguay, Universidad de la República, Universidad Carlos III de Madrid, Universität Klagenfurt

**REGÍSTRATE EN: <https://bit.ly/UniversidadesIoT2021>**

**ORGANIZA: UNIVERSIDAD NACIONAL DE CÓRDOBA**

UNIVERSITÄT KLAGENFURT, uc3m, Universidad Carlos III de Madrid, UNC, UNS, Universidad Nacional de Mar del Plata, UNIVERSIDAD DE LA REPÚBLICA URUGUAY, UCU, incutex, nettra

Cofinanciado por el programa Erasmus+ de la Unión Europea

**NEON**  
Network of Competence on Internet of Things

**1º INTERNATIONAL WEBINAR ON IOT IN UNIVERSITIES**  
Careers, Courses and Projects

**Friday, December 17th, 2021**  
11:00 - 12:30 hs  
(Argentina and Uruguay time zone: GMT-3)

**VIRTUAL MODALITY**

**INVITED UNIVERSITIES**  
UNC, UNS, UNMDP, UCU, UC3M, Universidad de la República, Universität Klagenfurt





**REGISTER AT: <https://bit.ly/UniversidadesIoT2021>**

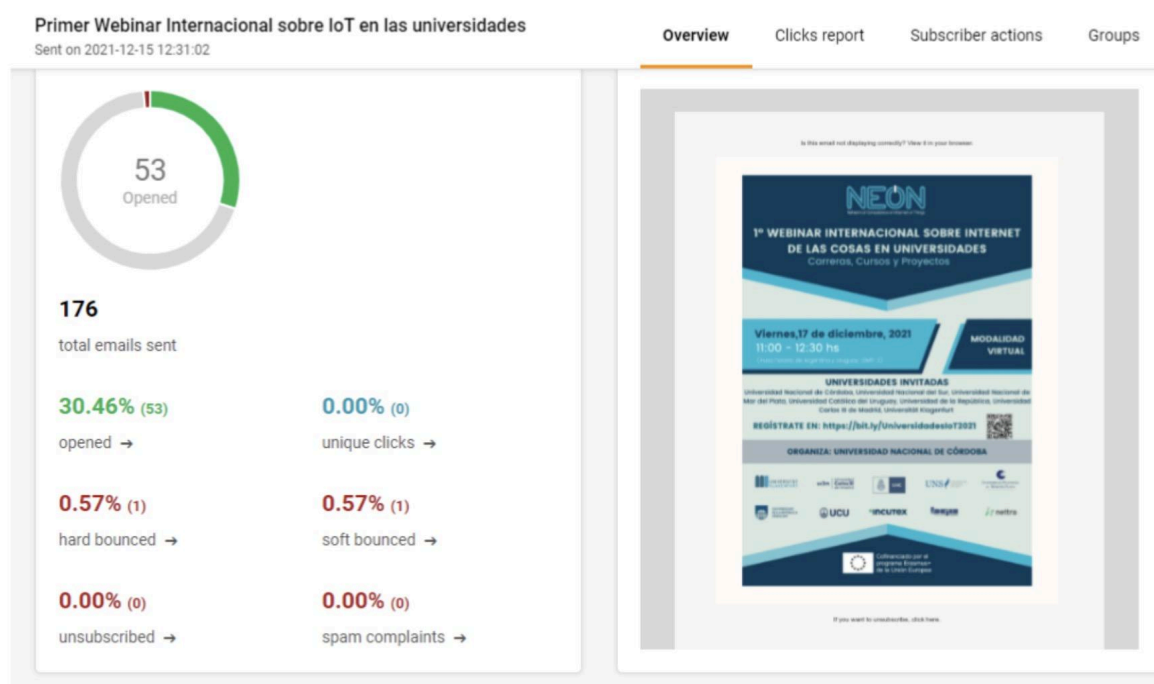
**ORGANIZES: UNIVERSIDAD NACIONAL DE CÓRDOBA**

UNIVERSITÄT KLAGENFURT, uc3m, Universidad Carlos III de Madrid, UNC, UNS, Universidad Nacional de Mar del Plata, UNIVERSIDAD DE LA REPÚBLICA URUGUAY, UCU, incutex, nettra

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

## 7.2. Annex 2: Analysis of the effectiveness of the email distributed invitation in the First Webinar

| Find campaign by name   |  | Sort by Edited at (newest to oldest) |  |
|---|--|--------------------------------------|--|
|  | Auto resend of Primer Webinar Internacional sobre IoT en las universidades<br>SENT 2021-12-17 05:11:03 | 25 delivered                         | 20.00% opened<br>0.00% clicks<br><a href="#">View report</a> |
|  | Primer Webinar Internacional sobre IoT en las universidades<br>SENT 2021-12-16 16:31:03                | 41 delivered                         | 46.34% opened<br>0.00% clicks<br><a href="#">View report</a> |
|  | Auto resend of Primer Webinar Internacional sobre IoT en las universidades<br>SENT 2021-12-16 01:11:02 | 129 delivered                        | 26.36% opened<br>0.00% clicks<br><a href="#">View report</a> |
|  | Primer Webinar Internacional sobre IoT en las universidades<br>SENT 2021-12-15 12:31:02                | 176 delivered                        | 30.11% opened<br>0.00% clicks<br><a href="#">View report</a> |



## Primer Webinar Internacional sobre IoT en las universidades

Sent on 2021-12-16 16:31:03

Overview

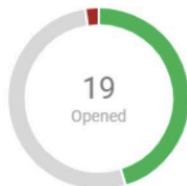
Clicks report

Subscriber actions

Groups

## Statistics

View subscriber actions



41

total emails sent

46.34% (19)

opened →

0.00% (0)

hard bounced →

2.44% (1)

unsubscribed →

0.00% (0)

unique clicks →

0.00% (0)

soft bounced →

0.00% (0)

spam complaints →

## Email

View clicks report



## Auto resend of Primer Webinar Internacional sobre IoT en las universi...

Sent on 2021-12-16 01:11:02

Overview

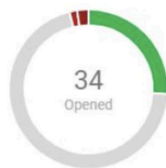
Clicks report

Subscriber actions

Groups

## Statistics

View subscriber actions



129

total emails sent

26.98% (34)

opened →

0.00% (0)

hard bounced →

1.59% (2)

unsubscribed →

0.00% (0)

unique clicks →

2.33% (3)

soft bounced →

0.00% (0)

spam complaints →

## Email

View clicks report



## Primer Webinar Internacional sobre IoT en las universidades

Sent on 2021-12-16 16:31:03

Overview

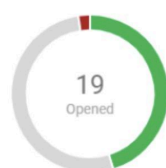
Clicks report

Subscriber actions

Groups

## Statistics

View subscriber actions



41

total emails sent

46.34% (19)

opened →

0.00% (0)

hard bounced →

2.44% (1)

unsubscribed →

0.00% (0)

unique clicks →

0.00% (0)

soft bounced →

0.00% (0)

spam complaints →

## Email

View clicks report



## 7.3. Annex 3: Zoom results of the First Webinar





## 7.4. Annex 4: Second Webinar flyer

**NEON**  
Network of Competences on Internet of Things

**WEBINAR INTERNACIONAL**

**PRESENTACIÓN DE LA RED DE COMPETENCIAS NEON**

**Miércoles, 19 de Abril, 2023**  
**11:00 - 12:30 hs**  
(Huso horario de Argentina y Uruguay: GMT-3)

**MODALIDAD VIRTUAL**

**SE INVITA A EMPRESAS, UNIVERSIDADES  
E INDIVIDUOS A PARTICIPAR DE ESTE  
WEBINAR**

REGÍSTRATE EN: [https://docs.google.com/forms/d/e/1FAIpQLSc1l8yA\\_Xg31cTTBCogAtsf5xe55fV7ZgR2\\_eheyiSfrvBA/viewform?usp=share\\_link](https://docs.google.com/forms/d/e/1FAIpQLSc1l8yA_Xg31cTTBCogAtsf5xe55fV7ZgR2_eheyiSfrvBA/viewform?usp=share_link)

**ORGANIZA: UNIVERSIDAD DE LA REPÚBLICA URUGUAY**

Cofinanciado por el programa Erasmus+ de la Unión Europea



### 7.5. Annex 5: Third Webinar flyer

**NEON**  
Network of Competence on Internet of Things

**3º INTERNATIONAL WEBINAR ON IOT  
IN UNIVERSITIES**  
Degrees, Courses and Projects

**Thursday, October 26th, 2023**  
**09:30 - 11:30 hs**  
(Argentina and Uruguay time zone: GMT-3)

**VIRTUAL MODALITY**

**project website**  


**INVITED PARTNERS**  
INCUTEX, UNC, UNS and UNMDP (Argentina),  
UCU and UDELAR (Uruguay).

**REGISTER AT: <https://forms.gle/ivu7LHKahaL8UBKb7>**

**ORGANIZER: UNIVERSIDAD NACIONAL DE MAR DEL PLATA**












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