Course Plan

The teacher maker

**Title:**

The teacher maker! Enhance the technological literacy in the classroom.

**Course introduction:**

The traditional concept of literacy is changing. In the 21st century people need much more than read, write and use arithmetic, to be able to compete in a global world. The importance of the Information and communications technology (ICT), in our days, as an engine for innovation, job creation and social and economic development, is so huge that justified the creation of the European Digital Competence Framework of the European Commission.

Consequently, we need to develop in our schools the technological literacy. This is, according with Cathrine Hasse & Jamie Wallace “The learnt ability to gain and combine technical know-how together with other forms of social and cultural understanding to identify and qualify opportunities for the deployment, use and application of new and disruptive technologies within a professional context”.(Learn more in <http://technucation.dk/en/concepts/technological-literacy/>)

For that, we design this course, to give the teachers the skills and autonomy necessary to enable them to create learning activities for enhancing the technological literacy inside their classrooms.

The base of this course is the technology literacy platform Gyro, which was created to promote one enjoyable learning on the three digital technology dimensions:

**Social:** taking part of the open community, where is encouraged and powered the learning, the collaboration, the sharing, the creation and the self-improvement. See Gyro portal: <http://gyro.artica.cc/>

**Software**: the development of behavior for technological artefacts (physical or not) through the visual programming environment based on the computational Behavior Trees paradigm. See Gyro Creator: <http://gyro.artica.cc/creator/>

**Electronics**: edition, transformation and clone of a Gyro robot, from an electronics base, with different components that facilitate the invention of fun, crucial, or simply necessaries applications. See video, starting in the 1st minute: <https://www.youtube.com/watch?v=noJCmKt0u6o>

We structured this course through four workshops of creative and physical computing.

These workshops will happen in a space prepare for this purpose and with all the equipment necessary. The participants will be always support by one dedicated and expert team of trainers.

**Workshop 1:** Learning and the open communities

Visit, know and participate in the universe of the makers – making spaces, open communities, open technologies and digital fabrication, where is possible to learn, collaborate and continue innovating in a global network.

The participants, with our support, will be immersed in the universe of these open communities, from where they continue learning and innovating… We will start with the Gyro community, followed by others as the Arduino, the Adafruit, the Scratch, or the Processing, and even the ones which subject is closest to the teaching field of the participant.

**Workshop 2**: Software

Enhance the computational thinking, enabling people for the creation of software code, in several environments, via the open and collaborative platforms, which they can use with a diverse number of technological artefacts.

The participants will know, experiment and use the follow programming environments: Gyro Creator, Arduino, C; Scratch e Processing.

**Workshop 3**: Physical computing

Use, clone and make creative electronics and robotics, starting with the Gyro (Introduction kit to open source creative robotics). We’ll make several exercises around different hardware sets and functionalities (ranging sensors, actuators, engines, physical models of the artefact, etc.).

**Workshop 4:** Personal cases for classroom

Each participant will be invited to make its own digital artifact, which could be based on its own program and lesson.

**Methodologies**

This course is designed to be very interactive. Accordingly, we mix several methodologies and techniques, such as ice break exercises, team building, debates, network creation, brain storms, theoretical-practical sessions, learning by doing and study visits.

**Program contents:**

* Technological literacy, concept and importance to European schools of the 21st century
* Open learning communities online
* Introducing the “eTwinning” tool
* Introducing Gyro as an education tool
* Creative and physical computing using Gyro

**Specific objectives**

At the end of this course, we aim that all the participants:

* Know the concept and importance of technological literacy
* Know the most relevant online learning communities, useful to keep one active technological literacy, and to their leisure and professional activities.
* Be active and collaborative among diverse open communities.
* Get interest, motivation and the capacity of creating software programs for varied kinds of applications, alone or appealing to the peers’ work on the network.
* Know how to create a mobile application that interact with the Gyro.
* Know the basic architecture of one digital object.
* Know the platforms and sales channels of electronics components, digital fabrication and complementary services.
* Edit or build one digital technological object (they can have the help of the peers and of the community)
* Create learning activities and exercises to use inside of the classroom.

**Certification**

We will give a Europass Mobility certificate at the end of the course.

**Training Places:**

Almada, at the Faculty of Sciences and Technology (FCT NOVA) campus, in Caparica, at 15 minutes from Lisbon and 5 minutes from the beaches). See how to get there in <http://www.fct.unl.pt/en/about-fct/how-get-fct>

Some of the training sessions will be on the Fablabs or maker spaces of the region. We will try to give you the opportunity to know the people and spaces that make technological artifacts.

**Training provider**

Articademy is EdTech company, with a Maker and Open Source attitude, where the individual is at the centre of the learning action. Articademy mission contributes to the XXI Century digital literacy needed for a full performance of social, economic and professional activities in a global digital society.

**Follow-up**

We would like that after the course the participants think about the knowledge that they developed there and then try to disseminate it in their home schools and apply it in their classrooms. Also, we would like for them to keep the contact with each other and collaborate to find educational solutions together.

Therefore, applying the open source logic, we will create output groups/ forums inviting the participants to share their ideas, opinions and experiences with the Gyro community.

**Cultural activities**

Guided tour in the old Almada city

We will organize more cultural activities. However, they will not be included in the course price and they are optional.

**Logistic**

The price only includes the course fee, the coffee breaks and the travels to visit the FabLab of Lisbon, depart from Almada.

Accommodation, Farewell dinner, and the other meals are not included in the price, neither other travel cost between places of training and of visits. However, we can give you advices about how to find a suitable accommodation and transportation.

**Duration**

5 days

**Number of participants**

15

**Price:**

415€

If you want to take home a Gyro with you, it will be more 250€, in additional to the course price.

Gyro specification can be found here: <http://gyro.artica.cc/prices.html>

**Aims:**

Invite and support teachers as maker’s, providing them the kit starter to engage a world network of creative minds and technology tinkers that so that they gather the confidence and means to improve the student’s education and creativity using the learn by doing methodology and new technologies.

Give the teachers the competences and autonomy necessary to enable them to create learning activities for enhancing the technological literacy inside their classrooms.

Give to know the Gyro. It is an open source platform, where everyone can use its resources, develop new tools and share it with the community.

**Sessions**

|  |  |  |
| --- | --- | --- |
|  |  | Register before |
| 2017: | | |
| July | 03.07.2017 > 07.07.2017 | 03.05.2017 |
| September | 25.09.2017 > 29.09.2017 | 25.07.2017 |
| October | 16.10.2017 > 20.10.2017 | 16.08.2017 |
| 2018 | | |
| January | 15.01.2018 > 19.01.2018 | 15.11.2017 |
| April | 09.04.2018 > 13.04.2018 | 09.02.2018 |
| July: | 02.07.2018 > 06.07.2018 | 02.05.2018 |
| September | 24.09.2018 > 28.09.2018 | 24.07.2018 |
| November | 19.11.2018 > 23.11.2018 | 19.09.2018 |

**Program**

*Day 0*

Arriving

Day 1

Welcome

Technological literacy

Workshop 1

Day 2

Workshop 2

Day 3

Workshop 3

Day 4

Workshop 4

Day 5

Workshop 4 (continuation)

The “eTwinning” tool

Conclusions

Course evaluation by the participants

Farewell dinner