Imagination Station

A new educational experience

The “Imagination Station” educational experience on “Makers” and “Technology” is a project-oriented program aiming to demystify the technology, incentivize creativity, promote organization, group collaboration, and working development strategies to achieve results.

The program assumes a multi-year process with several different formation moments, with specific goals but interconnected. In this way, we have three main moments:

- ***“Bits & Atoms”*:** students contact with key/emerging technologies for the future. The focus of this period is to provide students with a first approach with those technologies, demystify them, and stablish some “ground” to the next steps where they will use them to develop their own project.
- “**World**” initiative, where students are invited to define a project and implement it. During this period, students will get the specific formation to implement that project. Here we assume two phases:
    - ***“Project organization”,*** where they will learn the path to start and organize their project through a certain number of sequential modules. These modules aim to better define, organize, and manage the initial development of the

project and start to do conceptual prototyping. A set of tools will be introduced to support those activities.

- **“Project development”,** where they will have specific formation and orientation regarding the needs of each project. This process will be executed through a program of regular workshops on the most different areas that can help students in their project development.

The modules of the ***“Bits & Atoms”*** course are dynamic and can change from year to year according of the emerging technologies of the moment. Currently, they include the following modules:

- **"360º image and video"**
  - 360º Video: principles and planning
  - 360º video production
  - 360º video viewing (VR)
- **"Game Development"**
  - "We can make games in everything and with everything"
  - 2D digital video games. Practical session with Construct 3
  - Practical session (even more). Production of a prototype
- **"3D Modeling and Printing"**
  - How to do ‘almost’ anything
  - Slicing and detailed information from Thinkercad and other CADs, beginning of the multidisciplinary design of the Logo.
  - Practical session
- **"Introduction to Programming"**
  - "Hello World"
  - Bits, Data and Structures
  - Puzzles and Games
- **"Artificial intelligence"**
  - AI Programming
  - Generative AI
  - Create an Avatar
- **"Introduction to Microprocessors"**
  - Introduction to Microprocessors
  - Sensors and Actuators
  - Practical application

- **"Introduction to Robotics"**
    - Introduction to robotics
    - Introduction to programmed behaviours
    - Practical application: "Robotic Challenge"
- **"Fundamentals of Augmented/Virtual Reality"**
    - Virtual Worlds
    - Increase Reality
    - Spatial Computing

The **"Bits & Atoms"** course is followed by the ***"Project organization"*** period of the ***"World"*** initiative. The "Project Organization" includes the following modules:

- **Project structuring (MindMap)**
- **Project management (ClickUp)**
- **Benchmarking**
- **Storytelling (Canva)**
- **"Branding" and Logo Design**
- **UX (Usability) Introduction**
- **Introduction UI (User Interfaces)**
- **Conceptual prototyping - visual (Figma)**
- **Conceptual prototyping - programming (App Inventor)**

Regarding the ***"Project development"*** period of the ***"World"*** initiative, the list of workshops includes (listed in a random order):

- **Benchmarking**
- **Mood Boards**
- **Colour Theory**
- **Infographics**
- **Electronic Hardware Prototyping**
- **Game Development Essentials 2D (2x 2h)**
- **Game Design (Card Games) (2x 2h)**
- **Game Design (Board Games) (2x 2h)**
- **3D Modelling for Makers I (Fusion 360 essentials) (2x 2h)**

- **3D Modelling for Makers II (Fusion 360 complex mechanical objects) (2x 2h)**
- **3D Modelling for Maker III (Fusion 360 challenges)**
- **Laser Cut for Makers I (2D, Engrave and Cut)**
- **Laser Cut for Makers II (3D from 2d Cut)**
- **Filament 3D Print Operation Basics (FDM Printer and Slicer)**
- **Resin 3D Print Operation Basics (Resin Printer and Slicer)**
- **Photogrammetry (3d Scanning)**
- **Paint and finishes for Prototypes and Miniatures 3D**
- **Visual Programming in Unreal Engine**
- **Problem Solving for Makers**
- **Business Plans**
- **IP**
- **Introduction to Music Creation with Modular Synthesis**
- **Unity (Game Development Engines)**
- **Java (Object Oriented Programming - 1st contact)**
- **Blazor (Web Development)**
- **generative AI**
- **Cyber security (good practices)**
- **Web3**
- **Digital Marketing**