

THE INFORMATION OF THE WORKSHOPS AND THE RESOURCE OF COMPUTATIONS THINKING, 3D DESIGN AND PRINTING

Workshop 1: STEAM Innovation and Programming

This workshop is to show how to apply Computational Thinking Philosophy and Arduino Programming Technology into your Creative projects.

- A. Computational Thinking
- B. Arduino Platform for Innovation Projects
 - Arduino hardware and GPIO
 - Arduino programming to control circuit and sensors
 - Arduino project examples
 - IoT, Robot
 - Innovation Project
 - Smart Lamp

Computational Thinking is the thought processes involved in formulating a problem and expressing its solution(s) in such a way that a computer — human or machine — can effectively carry out.

About Arduino



Arduino is a single-board microcontroller and platform used for learn electronics, engineering, programming, and create amazing things, including smart lamp, weather station, remote control robot, home automation and various IoT applications, etc. Arduino is a perfect tool for STEAM education and creative projects.

Workshop 2: STEAM Innovation and 3D Design & Printing

This workshop is to show how to apply Design Thinking Philosophy with 3D Design and Printing Technology into your Creative projects.

Design thinking refers to creative strategies designers use during the process of **designing**. It has also been developed as an approach to resolve issues outside of professional **design** practice, such as in business and social contexts.

A. Design Thinking



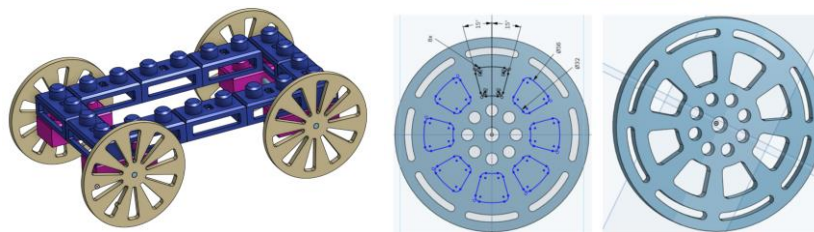
B. 3D Design Tools and Applications

B1. Tinkercad (for beginner and art design)

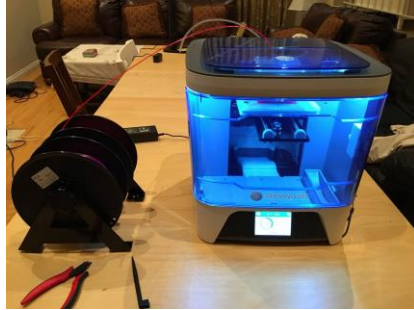


B2. Onshape (Advanced 3D software)

Robot Wheel Design



C. Use 3D Printing to Make Your Own Parts



D. Use 3D Design and Print Technology for Innovation Projects

3D Design and Printing Resources:

3D software for build your Innovated design ideas

Tinkercad – www.tinkercad.com

Tutorials - https://www.youtube.com/playlist?list=PLtmhShv-MyLCDAq07X_gm1TRnBCZ8nx

Demo Project – Arduino Autonomous Servo Robot Designed in Tinkercad

<https://www.youtube.com/watch?v=Lz9jQQ5H318>

Onshape – www.onshape.com

Tutorials –

<https://learn.onshape.com/collections/onshape-fundamentals-cad>

<https://www.youtube.com/watch?v=pMWnsHpDIQE>

<https://www.youtube.com/watch?v=8VHbZgrfI94>

https://www.youtube.com/watch?v=yQQLZ_QJgxc

3D Printing Online Service

ALL3DP - <https://all3dp.com/>