

Cloud based Digital Blended Learning

Powered by

Virtual Innovation Lab



**STEM Arduino Programming Design And Prototyping
Tinkering and Innovation**

Eligibility: All Branches BTech (I-IV) Years.

Why EdgeFX Innovation and Tinkering Labs?

EdgeFX is embarking on the 4th Industrial revolution to help students, academia, government and policy makers alike to ride the wave. Our solutions provide platforms for teachers and students to improve teaching, learning and research competence and develop 21st century skills like problem solving, innovation, collaboration, leadership and practical skills.

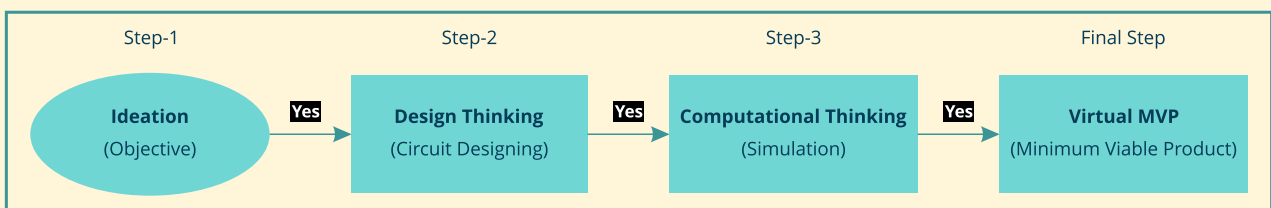
About

EdgeFX STEM Lab are based on electronic building blocks, designed for easy use and to feed the curiosity of young minds. Each Block has a defined function. Blocks are in different colors and have Block IDs and polarities on them so that you can easily identify and properly mount them on the base. Blocks are grouped into four different categories like Power, Input, Output and Accessories which are color-coded by function. Build 10+ Projects With Reusable Modules Including Basic Components, Sensors, Inputs, Outputs, Wires, Connectors And Breadboard With Detailed Project Manual And Audio-visuals. EdgeFX STEM Lab come with complete documentation including Assembly Procedure and Trouble shooting and extensive project documentation with physical diagrams, project image and circuit diagram with explanation. The projects include real time examples with fun-filled activities and experiments, to kindle your curiosity. These Labs are also mapped to the curriculum.

Objective

1. To help students learn the fundamentals of STEM Arduino Programming and innovate thereafter.
2. Ideation, Design Thinking, Computational Thinking, Physical Computing, Minimum Viable Product including Circuit Design, Circuit Building, Simulation and Coding.

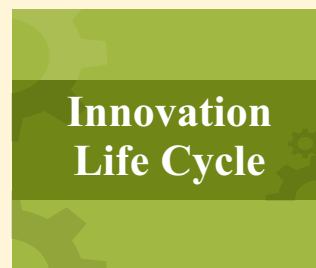
Idea to Prototyping Flow Chart



STEM Arduino Programming

Topic	Course Outline
1	Power the Arduino Nano
2	To demonstrate the Push Button Switch, Buzzer and generate sound with Arduino Sketch
3	To generate Red flashing light
4	To generate Green flashing light
5	To generate Blue flashing light
6	To generate secondary color Yellow with the sum of two primary colors Red and Green
7	To generate secondary color Magenta with the sum of two primary colors Red and Blue
8	To generate secondary color Cyan with the sum of two primary colors Green and Blue
9	To generate White light with the sum of three primary colors Red, Green and Blue
10	To generate the final output. i.e. To generate a rainbow of colors, each with a unique Buzzer Sound.

Complimentary Courses Industry 4.0 and Innovation life cycle



Virtual Lab Video Link

<https://www.youtube.com/watch?v=wi7USGVCWA8&t=7s>



Real-time Circuit Design, Coding and Simulation



Blending Learning with Instructed led Sessions



Assignment & Project Included



Realtime working video presentation of exact hardware, besides simulation.