FAB LAB STANDARD WORKSHOPS

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Robotics

Age: 9 and up

Learn about robotics through the use of the Lego Mindstorms EV3 robotic system. Design and program your own robot to complete various tasks in a fun and interactive environment.

Learning Objectives

Participants will learn about the Lego Mindstorms EV3 kit and its various components, while engaging in 21st century skills associated with deeper learning, such as analytic reasoning, complex problem solving, and teamwork.

Imagine, Design and Create:
CorelDRAW / Inkscape

Age: 11 and up

Use your imagination and creativity to digitally design and fabricate your own product or branded item, using design software CorelDRAW / Inkscape and our Fab Lab equipment, such as the laser cutter or vinyl cutter.

Learning Objectives

Participants will learn digital drawing, special effects, photo manipulation and many more digital designing skills using professional design software CorelDRAW or free open source graphics software Inkscape. They learn to put their creative ideas into design and produce their own personal, or possibly marketable product using a laser-cutter or vinyl cutter.

Imagine, Design and Create:
AutoCAD/CAM

Age: 11 and up

This workshop introduces you to design using Computer-Aided Design (CAD) Computer-Aided Manufacturing (CAM). You will have the opportunity to fabricate your CAD/CAM design using our Fab Lab's 3D printers or laser cutter.

Learning Objectives

Participants will learn and familiarise themselves with the professional design process of CAM/CAM software and create their own product / prototype, using a 3D printer or laser cutter.

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3D Pens
Age: 9 and up

Learn the basics of using a 3D Pen and then put your skills to the test with your own freehand design.

Learning Objectives

Participants learn how to put their ideas into a tangible object, allowing for creative creations as well as prototyping.

Arduino
Age: 11 and up

Dive into the world of electronics with the Arduino electronic system. Understand how the Arduino Uno board works and why it's so popular. Design your own electronic circuit using LEDs, sensors, integrated circuits and much more.

Learning Objectives

Participants will learn about basic electronic components such as resistors, capacitors, diodes, LEDs and how they can be used to create innovative projects. They will gain an understanding of what it takes to prototype and problem-solve utilizing the Arduino electronic platform.

littleBits
Age: 9 and up

Learn simple electronic circuitry creation through easily assembled components of the littleBits electronic kit.

Learning Objectives

Participants will create innovative prototypes while learning about electronics and its various applications.

FAB LAB SPECIALTY WORKSHOPS

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Robotech 1:
EV3 Deep Dive
Age: 9 and up

Experienced with basic robotics skills? Then this workshop is for you! You will now have the opportunity to dive deeper and learn about sensors and how they can be used with their robots.

Learning Objectives

Participants further deepen their basic robotics skills by learning about sensors, servos and microcontrollers.

Robotech 2:
Exploring VEX
Age: 11 and up

Experienced with programming? Then this workshop if for you! You can learn about robotics through the use of the VEX robotic system. Design and program your own robot to complete various tasks in a fun and interactive environment.

Learning Objectives

Participants will learn about the VEX robotic system and associated components such as sensors, servos and microcontrollers.

Tech It Out:
Advanced Arduino
Age: 11 and up

Explore the world of electronics with Arduino. As a follow-up to the Standard Arduino Workshop, this workshop allows you to build more advanced circuits and acquire a greater understanding of electronics.

Learning Objectives

Participants will learn about transistors, potentiometers, logic gates and how they can be used to create innovative projects. They will gain an understanding of what it takes to prototype and problem-solve utilizing the Arduino electronic platform.

FAB LAB SPECIALTY WORKSHOPS

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Use Bits and your Wits!   Age: 9 and up

Learning Objectives

Building circuits is simple and intuitive, allowing you to create powerful, sophisticated electronics in a matter of seconds. You can be engaged in increasingly complex projects as your understanding of the system and Bits grows.

Participants will be engaged in active inquiry and problem-solving. The flexibility and adaptability of the Bits mean students of all ages and abilities can use them to create very simple or very complex inventions.

Use Bits and your Wits!   Level 1

Invent a security device

Explore environmental sensors and create an alarm to safeguard your backpack.

Invent a self-driving vehicle

Be inspired to design a car of the future as you experiment with motion and stability.

Use Bits and your Wits!   Level 2

Invent the classroom of the future

Make the classroom of the future. Pinpoint something that could be easier, especially exciting, or that you wish existed. Use your expertise to design an invention that makes school extra awesome.

Invent for good

Invent a product to make a difference in someone else's life. How does a product get invented?

FAB LAB SPECIALTY WORKSHOPS

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Just for Girls!   Age: 9 and up

Learning Objectives

Jewellery making!
Design your own 3D puzzle!
Make your own phone case design!
Make your own personalized key chain!
Re-design your room!
Make your own greeting card!

Learn design and creation using our design software and Fab Lab equipment.

The activity is concluded by creating a 30-second commercial to pitch your product.

Participants will learn and familiarise themselves with the digital design process using specialty software, digital fabrication using the equipment of the Fab Lab, and creating and marketing their own products.

Just for Boys!   Age: 9 and up

Learning Objectives

Make your own phone case design!
Make your own personalized key chain!
Make your own car stickers!
Make your own dog tag pendant!
Design your own 3D puzzle!

Learn design and creation using our design software and Fab Lab equipment.

The activity is concluded by creating a 30-second commercial to pitch your product.

Participants will learn and familiarise themselves with the digital design process using specialty software, digital fabrication using the equipment of the Fab Lab, and creating and marketing their own products.

FAB LAB SPECIALTY WORKSHOPS

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Gamerz World
Build your own computer games

Age: 9 and up

Learning Objectives

Learn basic electronics principles and build simple electronic control devices using the makey makey circuits. In this workshop, you are given materials and a makey makey kit to design and build your own game control and game, in which it can be used.

Participants learn basic programming with block coding using scratch software. They are guided as they design and create an animated game.

KoduNation
Build your own computer games

Age: 9 and up

Learning Objectives

You are given the opportunity to build a simple computer using the KANO kits. Go from knowing nothing about how a computer is built or how to code to having a clear and basic understanding of both, lifting the veil and removing the complicated mindset regarding PCs.

Participants will learn basic programming using various coding languages to create and modify various games.

Improve your City

Age: 9 and up

Learning Objectives

Consider a problem your community currently faces in its infrastructure (e.g. transportation, water, sewerage, power, or internet). Based on the research and the ideas generated, pick a solution that will improve your chosen part of the infrastructure to design. A solution can be anything from a new way to manage power services at the pole, building a better bus stop or improving signage. Draw and plan how you can quickly show this solution using the materials and tools on hand. The activity is concluded creating a 30-second presentation and pitching your solution.

Participants will learn to think-critically and innovatively, design, prototype and propose new and improved solutions to problems.

FAB LAB SPECIALTY WORKSHOPS

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Design and Build Toys
Age: 9 and up

Learning Objectives

You are presented with a challenge: Children of families who had to evacuate their homes because of severe flooding no longer have any toys. You need to engineer some new toys for them! You will be given various materials to work with and will need to use your imagination plus math and science to design and build toys. You will also be required to create plans for project material expenses to meet a budget. The activity is concluded by creating 30-second presentation and pitching your product.

Participants will learn to apply the engineering design process to a design challenge. They will create a plan for project material expenses based on a budget. They will learn to build an electric circuit using batteries, wire, and a motor.

Trash to Cash
Age: 9 and up

Learning Objectives

Become a social or technological entrepreneur with a responsibility to the environment! Design a new product using the 3Doodler pen to adapt, connect and add new life to old stuff. You may be given a specific problem to solve or your ideas can flow with an open-ended challenge. You conclude this activity by creating a 30-second commercial to pitch your product.

This challenge engages the participants in a creative process to design their own products using inexpensive materials. It leverages experimentation with varying qualities of materials and explores their applications to design and creation, whilst also including a marketing component.

Wearing Solutions on your Sleeve
Age: 11 and up

Learning Objectives

Choose a problem to solve by creating a wearable device, using 3Doodler pens and plastic strands. Kick it up another notch and add micro sensors, circuit boards or processors. Watches, virtual reality goggles, medical alerts and even backpacks can be considered a wearable technology. Your team can decide in advance they will be improving an existing wearable or creating a completely new invention, as well as the complexity of electronic parts that will be included.

Participants will learn the design innovation process to create wearable technology. They will learn to budget for materials and electronic parts as necessary to develop their device.