



Digital Fabrication and Innovative Labs

As an early member of the digital fabrication movement, TIES has been instrumental in establishing standards for classroom curriculum. Today, our work goes beyond the school setting — also designing and building stationary and mobile labs for early childhood through adult learners in museums, corporations, STEM Learning Ecosystems and more.

Early Childhood Digital Fabrication Labs

When the mission of a typical facility is extended and scaled to the needs of our youngest learners, we are able to support the critical development of inquiry skills, reasoning and problem solving. We help supplement traditional digital fabrication tools with low-tech and tactile design approaches, computational thinking and scales into digital design with tools focused on young minds.



Refabrication Labs

Schools, museums and organizations across the country have purchased digital fabrication equipment that has largely sat idle since its purchase. TIES consultants work with you to assess the viability of existing equipment, help identify the gaps and work with your team to design a plan that tightly integrates the existing equipment into your curriculum.

Mobile Digital Fabrication Labs

A mobile maker space allows all learners to explore, create and imagine. These mobile experiences put all of the tools and equipment needed for deep engineering education into a custom-built vehicle. They are easy to load and unload and allow for the use of one lab to support teaching and learning across a geographic region.

TIES designs and builds custom maker spaces that are not from boxed or pre-created solutions.



Digital Fabrication Labs Enhance Teaching and Learning

- Stimulates creativity and artistic expression
- Promotes experiential, trans-disciplinary learning by engaging students in real-world problem-solving using authentic tools to develop, design and create
- Provides an authentic experience with the Engineering Design Process
- Fosters 21st century skills through teamwork, creative thought processes, learning persistence and developing problem solving skills

Custom Maker Spaces from Design to Sustainability

When you partner with TIES, you have a team of engineers and educators who use years of experience and evidenced-based criteria to lead all aspects of creating a maker space, from drafting the design through implementation and sustainability. Our services include:

Listen and Learning

Research, focus groups, learning tours of existing labs and demonstration of work, site assessment and evaluation of existing curriculum.

Design Studios and Blueprints

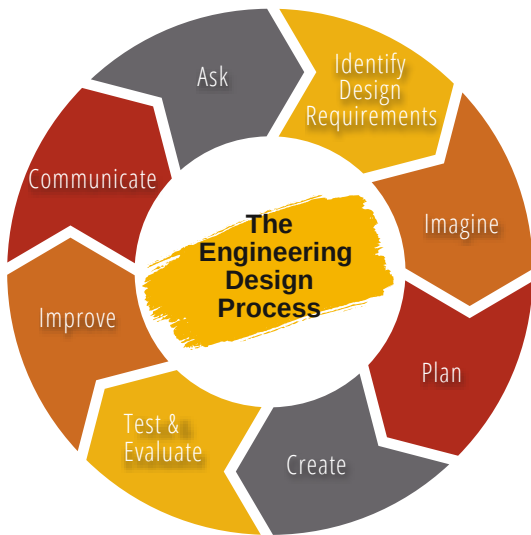
Facilitated meetings focus on cultivating collaboration and engagement among all stakeholders, and help identify unified goals, curriculum, use and sustainability factors. Design Blueprints include strategies and tasks for curriculum design, implementation and professional development to ensure a robust launch and intended impacts.

Implementation Support

Includes machine procurements, installation, trouble shooting and contextual training for staff.

Sustainability and Transition Extended

User training, professional development and ongoing support and connectivity to curriculum for teachers and lab managers.



Our Approach

At the heart of every project we touch is the **Engineering Design Process**, a cyclical construct for solving problems. The process ensures that possible issues and/or implications are appropriately identified, considered and monitored throughout design and project implementation. This enables teams to establish a unified vision and outcomes that help build programs and practices that support the needs and desires of the collective group.

TIES. Providing STEM Access for All Learners

TIES is dedicated to making STEM accessible to everyone, especially underserved and underrepresented learners. We do this by connecting stakeholders — educators, funders, community organizations, businesses and government agencies — who, through collaborative partnerships, create meaningful and gainful STEM learning experiences. Our team of consultants provides strategic planning support and guides design, training and implementation across all of our services.



Uniting Partners. Transforming Learning.

Teaching Institute for Excellence in STEM

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