

STEAM Students Design for a Better Future

Artistic disciplines are a vital component of many industries shaping a more sustainable future.

From architecture to automotives and fashion design to product design, student creators and innovators are designing a better and more sustainable future. Science, Technology, Engineering, Arts, and Mathematics (STEAM) disciplines underpin essentially all industries, and they drive the intellectual property (IP)-intensive industries that account for over 41% of U.S. gross domestic product and employ one-third of America's total workforce.

All too often, creative contributions to industries like manufacturing, architecture, transportation, and agriculture are severely overlooked. Yet, without artists, designers, and other creative minds, the

world wouldn't have the sleek look of American muscle cars, iconic structures like the Empire State Building, or innovative products like smart watches.

Many universities and colleges offer a variety of programs for these creators to hone their skills and learn more about related industries. For example, Detroit's College for Creative Studies (CCS) offers courses and degrees in advertising design, animation, art education, art practice, communication design, color and materials design, crafts and material studies, entertainment arts, graphic design, interaction design, motion design, concept design, design for sustainability,

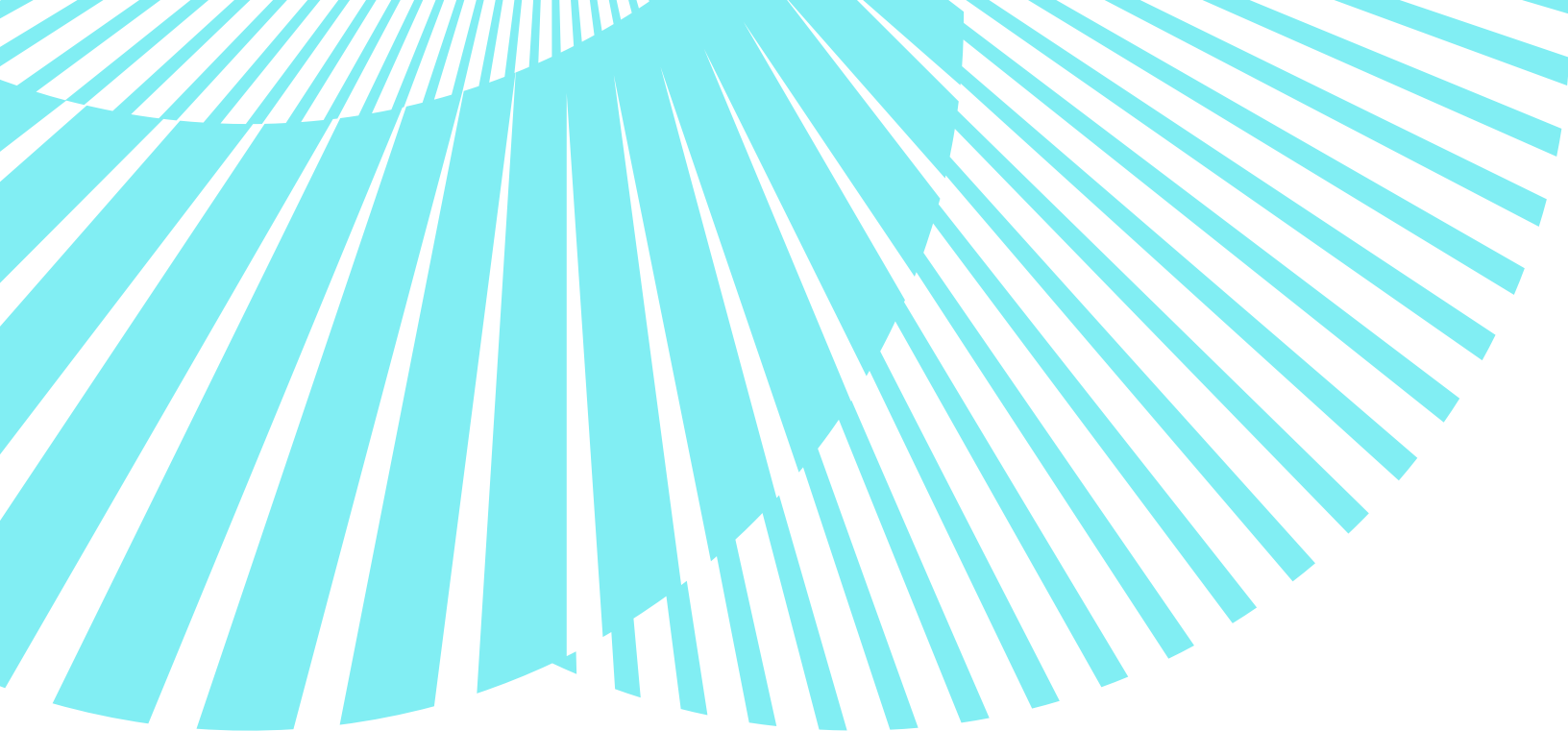
entertainment arts, fashion and fashion accessories design, film, game design illustration, interdisciplinary art + design, interior design, photography, product design, textiles, fine art, glass, metalsmithing and jewelry, painting, printmaking, sculpture, transportation design, user experience design, and visual development.

Who knew there is such a wide variety of employment options across a range of different industries? Creators aren't limited to—the equally important—traditional roles associated with music, film, television, painting, sculpting, writing, or theater. Furthermore, there are so many possibilities for creators to reinvent industries toward a more sustainable future.

The latest and greatest high-tech projects and products certainly provide consumers, creators, and innovators with state-of-the-art options. From high-efficiency doors and windows to electric agricultural vehicles and cleaner manufacturing systems, advanced innovations offer a wide range of solutions for an environmentally friendly future. However, sometimes these projects face other sustainability issues.

Rory O'Connor—a senior at Northeastern University studying sustainable architecture—explained, “There are so many buildings that are already built, and a big





thing in sustainable architecture is your carbon emissions. There's operational emissions when the building is actually running and needing to produce energy, heating, cooling, etc. Then there's the embodied emissions, which is the carbon that's in all of the materials that you built the building with, and all the carbon that is emitted when you are transporting the materials to the site. So, when you're calculating all that stuff out, it sometimes ends up being a lot more sustainable to use buildings that already exist and just upgrade them and retrofit them so that they use more sustainable HVAC systems and all that kind of stuff." Fewer abandoned buildings and longer lives for existing structures is certainly a boon for any community.

Given the creative and innovative nature of these programs, it's easy to say most—if not all—of them are IP-intensive. After all, students draw schematics, sculpt prototypes, assemble models, develop products, and some even sign non-disclosure agreements to protect clients' or employers' trade secrets. Sadly, though, students in universities all across the U.S. are generally ill-educated on the importance of IP to their work. Great ideas are stolen all the time from unsuspecting innovators, and young creators open themselves up to infringement claims because they were never taught the difference between derivative and transformative use. Such situations could easily break careers before they start or deter great minds from pursuing passions

that could change the world for the better. Therefore, the system needs to be better.

IP enables, empowers, opens doors, and crosses socioeconomic and cultural barriers. Creators and innovators looking to improve the world have a wide array of educational and employment options before them, but they need to be more thoroughly equipped: learning the vital role of IP in enabling creativity and innovation.

This is a significant opportunity that both the public and private sectors can capitalize on. Thoroughly cultivating talent should include thoroughly cultivating their understanding of IP. After all, these are the individuals literally working to create a better, more sustainable future.

