ADVANCED PRODUCTIONS

Georgia Institute of Technology   **Fall 2018**
School of Architecture   **Atlanta, GA**
ARCH 8833   **CRN 92103**

DFL: **TUESDAYS** 6:00pm – 8:45pm
Instructor: Keith Kaseman keith.kaseman@design.gatech.edu

COURSE OVERVIEW

Advanced integrations of digital design and production technologies are currently defining the core of future trends in architecture and construction. ADVANCED PRODUCTIONS is a research seminar geared to teach architects and designers to effectively interweave technical exploration, design agility, collaborative ingenuity and strategic operations in preparation to become leaders in these developing trends. A key objective for ADVANCED PRODUCTIONS is to practice how to both learn and utilize advanced digital design and production techniques, tools and insights in preparation for work to be executed as a final project. As a hands-on course rooted in cultivating knowledge through individual experimentation and systematic collective learning, this course will also serve to contextualize and synthesize design and technical skills obtained in other required coursework through lectures, demonstrations, analysis and the production of a digital-physical construct.

During the first portion of the semester, seminar participants will rapidly survey and interrogate a wide range of work, in disciplines ranging from art and architecture to aerospace and beyond, as case studies for heightened levels of sophistication achievable through complex collaborative initiatives and intricate utilizations of advanced design, production, analysis and deployment technologies. Through the remainder of the semester, participants will design, iteratively develop, fabricate and assemble a physical / spatial construct, utilizing a focused set of materials, CNC and manual production tools in the DFL. Within a clearly prescribed list of performance, dimensional, material, automation requirements and interoperability criteria, these material assemblies will incorporate Augmented Reality (AR) and drones (sUAS) into design intents, production workflows and fabricated digital-physical prototypes.

PRE-REQUISITES / TOOLS

While ADVANCED PRODUCTIONS is required for all MS Arch | Advanced Production students, it is open to all MS Arch, PhD, MArch and 3rd and 4th year BS Arch students. Students in other College of Design programs interested in this course are also welcome to enroll, pending an informal review of previous digital experience and specific interests via email or during the first class session.

Previous experience in the DFL is not required, though all students new to the facility will be required to attend an official DFL orientation. Proficiency in Rhino is required, and a robust working knowledge of Grasshopper would (always) prove to be beneficial but is not required. Specific instructional demonstrations will be provided accordingly for particular techniques and workflows in both **Rhino** and **Grasshopper**, and also for programming **CNC routers** at the **DFL** with **AlphaCam**.

Significant focus will be placed on research into **Augmented Reality (AR)** software and applications, specifically with respect to aligning virtual / digital information with physical objects though smartphones and / or tablets. As such, instruction in this terrain will be systematically facilitated through the orchestration of team-based research of fundamental tasks, techniques and operations within the various software packages. In other words, rather than being provided direct instruction for all facets required to utilize AR, all seminar participants will work together to learn and teach each other critical operations in both **HP Reveal** (hpreveal.com) and **Unity** (unity3d.com).