**OVERVIEW**

Having gained substantial momentum within the past decade, advancements in the field of robotics in architecture continue to develop at an astonishing rate. Countless experiments, demonstrations and professional applications of automated assembly applications carried out in academic institutions and professional fields across the globe point to a host of inevitably transformative impacts within design professions and construction industries. It is evident that ever-widening access to robotic equipment provides architects with unique opportunities to extend their reach into fundamentally new modes of design, spatial operation and material production. This introductory course aims to serve as a point of entry into this wide field of potential and development, and is geared to be a hands-on working seminar centered on the Kuka robotic arm (KR 120 R2500 PRO) in the Digital Fabrication Laboratory (DFL).

**COURSE STRUCTURE**

Boosted by a robust manual of working knowledge built up through recent seminars on robotic fabrication run by Shani Sharif, Russell Gentry and Daniel Baerlecken, this course is designed as a collective research seminar fueled by the development and execution of individual student work performed on the Kuka robotic arm. The semester will be divided into three working modules, placing sharp focus on specific robotic production and / or assembly techniques during each phase*. Upon initial training on operational, programming and safety protocols, participants will have dedicated blocks of time scheduled for personal use of the robotic arm outside of class time, and are expected to take full advantage of those time slots to perform work with the machine. This is not only to take advantage of the luxurious nature of this set-up with respect to such access, but also sets the tone for how this seminar will work during official class sessions. Instructor and / or student led presentations, tutorials and demonstrations, group discussions, collective troubleshooting, spontaneous team-oriented tasks and other types of work will take place on Tuesday nights during our scheduled meeting time. As is especially critical for students to gain full advantage of such a course, attendance and participation is required at every step along the way.

**PRE-REQUISITES**

Kuka PRC, the Grasshopper plug-in with which the Kuka robotic arm is programmed to operate, will be the primary tool utilized for this course. As such, participants with previous working experience in Rhino and Grasshopper will be primed to dive right into Kuka PRC on day one. However, previous experience in Grasshopper is not necessary to enroll in this course, with the caveat that such students take it upon themselves to at least become familiar with the Grasshopper interface and its basic working structure as a parametric platform on their own prior to the first day of class, through myriad resources available online.

* Phase I: “Spatial Drawing”: Linear control on planes and non-coplanar polysurfaces; Phase II: Pick-and-stack