



INTERACTIVE

SURFACES

**SENSING & INTERACTIVE TECHNOLOGIES IN
ARCHITECTURE & DESIGN**

**SAT-SUNDAY //
AUGUST 03-04**

v5.03

COURSE DESCRIPTION \ \

The workshop is oriented towards exploring the possibilities of the way we think about materials and design. Here we will design a form or material that is reactive as well as responsive in nature. It will explore the notions of adaptability and interactivity in architecture & design and aims to expand beyond the use of the computer and digital fabrication into robotics, electronics and physical computing platforms. Sensing and Interactive technologies in architecture and design aims to highlight process of design and through that what can be achieved with the help of integration of technologies in it. The workshop goes into establishing physical and digital connections leveraging operational flexibility and fluidity using Grasshopper. The workshop will strive to highlight intelligence in systems and pose the problem of multiple contradicting parameters in digital design. The workshop will focus in creating physical interactive prototypes responding to certain parameters or information. Grasshopper and plugin Firefly paired with Arduino Board's computing platform will be introduced to participants as possible tools for experimentation.

STRUCTURE \ \

Participant will get to experiment upon sensors and actuators with the help of Arduino board and visual programming in Grasshopper. A 3D form created using Rhinoceros and Grasshopper will be used to emulate the data taken from sensors. Each topic will be presented with both theoretical introduction and practical application. In the afternoon of the second day, participants will split into groups to develop their own projects, with direct supervision by the tutors, and towards their last day evening presentation. The workshop technical tutorial has been structured as follows:

DAY 1 SATURDAY (8 HOURS)

1. GRASSHOPPER VISUAL INTERFACE
2. UNDERSTANDING USE OF SENSORS IN MAKING INTERACTIVE STRUCTURES.
3. UNDERSTANDING SENSORS, ACTUATORS, MICROCONTROLLERS AND MICROPROCESSORS.
4. READING AND TRANSLATION OF DIGITAL SIGNALS USING ARDUINO
5. PROGRAMMING ARDUINO BOARDS THROUGH VISUAL PROGRAMMIG
6. USE OF EMULATOR TO EMULATE ARDUINO BOARDS

DAY 2 SUNDAY (8 HOURS)

1. OPEN SOUND CONTROL (OSC) AND USER DATAGRAM PROTOCOL (UDP) TO COMMUNICATE THROUGH DEVICES.
2. EXERCISE TO CREATE AN INTERACTIVE INSTALLATION USING VISUAL PROGRAMMING IN GRASSHOPPER.

TAKE AWAYS \ \

- Understanding how sensors and microcontrollers can be used to make an interactive installation.
- How to visually programme arduino to create a working prototype.
- In order to experiment on your own Arduino kit an extra amount of **50 USD** for Arduino kit has to be paid. Your designed model along with you and some more goodies.

TOOLS \ \

All the participants should have following tools installed on their workstations:

1. **Rhinoceros SR12** or Higher (30-day Trial version can be downloaded from <https://www.rhino3d.com/download>)
2. **Grasshopper for Rhino** (<http://www.grasshopper3d.com/page/download-1>)
3. **Firefly for Grasshopper** (<http://www.food4rhino.com/app/firefly>)
4. **Arduino IDE 1.6.0** (<https://www.arduino.cc/en/Main/OldSoftwareReleases>)
5. **Lunchbox for Grasshopper** (<http://www.food4rhino.com/app/lunchbox>)
6. **AutoCAD**
7. **Adobe Suite**

REGISTRATION \ \

A total of **20 seats** are available for the workshop per workshop coordinator. Registration will close 3 days prior to the workshop or till the seats last.

Please follow the link to complete the registration:

1 PASS permits 1 PARTICIPANT in 1 WORKSHOP

[Refer to the eduPass Section to learn more about the Professional/Student/Group/Multiple registration.](#)

CALENDER \ \

The workshop will be held on:

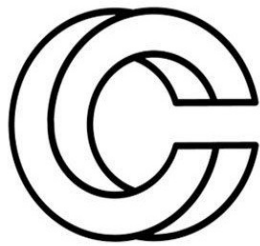
AUGUST 03 : 10:30 AM - 7:30 PM (SATURDAY)
AUGUST 04 : 10:30 AM - 7:30 PM (SUNDAY)

VENUE: Third Floor, 145/1, Shahpur Jat, New Delhi



REQUIREMENTS \ \

- Participants should bring their own computer with above mentioned software installed. More details will be sent to the registered participants.
- Intermediate knowledge of 3D modelling acquired on Rhino. (If you wish to gain expertise in Rhinoceros Join our workshop Algorithms and Parametric Fabrication in Design V 5.01)
- Basic knowledge of Grasshopper. (If you wish to gain expertise in grasshopper Join our workshop Programmin Morphologies V 5.02)
- In order to experiment on your own Arduino kit an extra amount of **50 USD** for Arduino kit has to be paid.
- Link to the respective software for download will be sent to the registered participants separately.



CLASSROOM COMPETITIONS

Classroom competitions are a part of this series of workshops and is meant for all the designers who want to explore their way with hands on experience to gain skills and create real world projects. Under this series you participate in workshops at one of these Micro-studio and get awarded a trophy.

In association with **UNI**, we are now expanding our vision of creating these micro-studios globally with a fusion of online design community and offline classrooms.

This fusion will help us in combining different ideologies and diverse methodologies, to create a continuum which links ideas such as exploration, debate and collaboration at a global level to understand and create '**Architecture of Everything**'





EDUPASS

EDUpass is a pass which can be used to participate in any workshop in this series (registration to be done 3 days prior the commencement of the workshop). Multiple EDUpasses can be purchased and used in a group to attend a single workshop or a single participant can register for multiple workshops.

For example, If you had purchased 6 passes, you can register to 6 different workshops or bring along 5 other friends/colleague with you to attend a single workshop of your choice.



HOW DOES IT WORK?

A Participant can purchase as many passes as he/she wants and 1 PASS permits entry to any 1 workshop and classroom competition of his/her choice.



SPARRO

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