**INTRODUCTION**

**Welcome to our laboratory**

The experiments under this laboratory belong to the discipline of Creative Design which concerns itself  with a user centred product innovation.

The experiments are in the specific  area of Human Computer Interactions (HCI)  - a specialisation of interest to Computer Science, Electronics, Information Technology  and Design students both at the Under graduate level as well as Postgraduate level.

Experiments focus on understanding the theoretical basis of decision making while designing computer screens, displays and product interfaces.  Usability parameters   along with Visual Quality are the measures of differentiation between a good User Interface (GUI) and an inefficiently designed one.  These experiments aim to make the students understand  some of the  underlying theory  of designing user centric yet functional and logical interactions in products both hardware and  software.

The first set of experiments  are aimed at understanding  Laws of interaction such as Fitts'  and Hick's laws that are useful in explaining human interactive  behaviour and the resulting designing heuristics for display screens.

Second set of experiments deal with Visual aspects such as aesthetics, colour form & grids which define the layout of content on GUIs.

The third set of experiments provides an experience of designing control panels of instruments and products by configuring virtual prototypes of the panels.

The fourth set of experiments help understand the metrics of measuring useability aspects.

This laboratory is an introductory experience to   Designing issues in both software and hardware product interfaces . It will be of interest to undergraduate and postgraduate level students in multiple disciplines such as but not limited to Computer Science, Information Technology and Innovation / Interaction   Design (ID).  The experiments form integral part of curriculum in courses such as Usability Engineering, Interaction Design and HCI in the Creative Design discipline. To know more about HCI and UE discipline click the link below.

To proceed to experiments or to know more about HCI and Usability Engineering click below:

[http://iitg.vlab.co.in/userfiles/7/image/uelabs/clickexp%281%29.png](http://iitg.vlab.co.in/?sub=72&brch=170&sim=743&cnt=2944)                                      [http://iitg.vlab.co.in/userfiles/7/image/uelabs/clickhciue.png](http://iitg.vlab.co.in/?sub=72&brch=170&sim=743&cnt=1293)

**EXPERIMENTS**

**Experiments** ( Click on the hyperlinks below to proceed to specific experiment )

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| --- |
| **Human Computer Interaction (HCI)** |
| [Serial Position Effect](http://iitg.vlab.co.in/?sub=72&brch=170&sim=744&cnt=1)  [Fitts Law](http://iitg.vlab.co.in/?sub=72&brch=170&sim=762&cnt=1)  [Hick Hyman's Law](http://iitg.vlab.co.in/?sub=72&brch=170&sim=769&cnt=1)  [Sensitivity, Errors And Task Complexity Measurements For Pointing Devices](http://iitg.vlab.co.in/?sub=72&brch=170&sim=751&cnt=1)  [Weber’s Law](http://iitg.vlab.co.in/?sub=72&brch=170&sim=750&cnt=1)  [GOMS Model](http://iitg.vlab.co.in/?sub=72&brch=170&sim=770&cnt=1) |
| **Visual Communication** |
| [Color Theory](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1300&cnt=2815)  [Consistency and Inconsistency In Interaction](http://iitg.vlab.co.in/?sub=72&brch=170&sim=862&cnt=1)  [Graphic Icons & Typography in GUIs](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1359&cnt=1)  [The Visual Coding Of Information In Short Term Memory (STM)](http://iitg.vlab.co.in/?sub=72&brch=170&sim=863&cnt=1) |
| **Prototyping** |
| [Mobile Keypad Design](http://iitg.vlab.co.in/?sub=72&brch=170&sim=764&cnt=1)  [Prototyping of TV Remote Control Panel](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1357&cnt=1)  [Prototyping of Control Panel of Domestic Appliances](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1381&cnt=1) |
| **User Experience Design / Usability** |
| [Usability Measurement Tool for E-Learning ( UMTEL )](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1313&cnt=1)  [Card Sorting Technique](http://iitg.vlab.co.in/?sub=72&brch=170&sim=1303&cnt=1) |
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**PEOPLES**

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**DOWNLOADS**

**Software Components**

1. To Download Flash Player  : [http://iitg.vlab.co.in/userfiles/7/image/uelabs/dwnld.png](http://get.adobe.com/flashplayer/)

2. Microsoft Chart Control 6.0 (OLEDB):

**Microsoft Chart Control 6.0 (OLEDB)** is required for some of the experiments developed using

**Visual Basic 6.0**. For using this activeX component you need to download it first from the link

    provided below. After downloading you need to save it in location **C:/Windows/system32/.**

               Note : These experiments or control will **not work** with 64 bit operating system

     To download Microsoft Chart Control 6.0 (OLEDB)  : **[http://iitg.vlab.co.in/userfiles/7/image/uelabs/dwnld.png](http://125.20.82.167/uelabs/downloads/MSCHRT20.OCX)**

3. To download Microsoft .NET Framework : [[http://iitg.vlab.co.in/userfiles/7/image/uelabs/dwnld.png](http://www.microsoft.com/download/en/confirmation.aspx?id=17718)](http://www.microsoft.com/download/en/confirmation.aspx?id=17718)

**HCI & UE**

**Human Computer Interactions (HCI)**

HCI is a multidisciplinary field involving inputs from computer science, behavioural sciences and design sciences. It studies the interactions between a human and computer. Interactions between humans and computers happen through interfaces on devices be they physical or virtual. HCI involves hardware and software. The design of physical input devices such as keyboards, mouse, joystick, touch screen, etc as well as graphics on screens are of interest.

The definition given by the Association of Computing Machinery – ACM states that HCI is "a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them".

The cost of not considering HCI while designing products has been evident through various accidents attributed to human as well as machine failures such as in aircraft or railways. Research in HCI involves studies of human performance on simulators. Results of such studies are often incorporated into training and safety programs. Researchers of different backgrounds contribute to HCI.

**Usability Engineering (UE)**

Usability Engineering is concerned with HCI and specifically with conceptualising, designing, constructing and prototyping interfaces as in software and as in hardware (products). Achieving highest possible user satisfaction in the use of the product is the prime aim. Human beings and their limitations both cognitive as well as physical are researched and engineered into the designs. Graphical user interface, gestural and sound interfaces; vision and perceptual interfaces, brain and thought operated interactions are some of the areas on which usability engineers work upon. Usability engineering inputs come from cognitive sciences and engineering sciences as well as computer sciences. Usability engineers are both creative designers as well as engineers building products.

Usability Engineering is new and emerging academic area of specialisations and incorporates in its fold sub areas in Creative Design such as interaction design (ID), user experience design (UXD) and user centred design (UCD). The usability engineering lab at the Department of Design at IITG is one such pioneering laboratory (established in 2003) in India that imparts education and training to designers and researchers since its founding in 2002. Other design schools and computer technology institutions have followed suit by establishing educational programs in HCI & Interaction Design.

(Ref: Status of HCI & Usability Research in Indian Educational Institutions – Pradeep Yammiyavar in "Human Work Interactions Design Useability in Social. Cultural and Organisational Contexts" Springer ; ISBN-10 3-642-11761-9 Springer Berlin Heidelberg New York) .

**Contact Us**

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