Course Description:

Fundamental Visual Applications in our course, including the main concepts in Human Computer Interaction (HCI) to get a knowledge for designing an interactive application. So, there are many things you need to understand in this course, such us: who will use the system? What are the main goals of the system? What are constrains in design process?

Visual Applications Course:

This course covers the following topics: The human, the computer, the interaction, interaction design basics, Design Rules, Evaluation Techniques, Usability Methods, Models of the System, Modeling RICH Interaction, HTML, CSS, and HTML5.

References:

- **HUMAN–COMPUTER INTERACTION, Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale (2006).**

- **INTERACTION' DESIGN beyond human-computer interaction, 2002.**

- **http://www.w3schools.com**

Grading

- 3% for the attendance.

- 3% for the homework.

- 10% for project.

- 14% for the Lab Exams.

- 20% for the Exams.

- 50% for Final Exam.

Cheating

1) "No Code Rule": Never have a copy of someone else's program in your possession and never give your program to someone else.

2) Discussing an assignment without sharing any code is generally okay. Helping someone to interpret a compiler error message is an example of permissible collaboration. However, if you get a significant idea from someone, acknowledge them in your assignment.

3) These rules apply to project. No discussion whatsoever in exams of course.

Before study any subject, you must know three important things:

1) The definition of the subject.

2) What are the fundamentals in this subject?

3) The goals, why you study this subject?

1) Definition of HCI:

An interdisciplinary field focused on the interactions between human users and computer systems, including the user interface and the underlying processes which produce the interactions. The contributing disciplines include computer science, cognitive science, human factors, software engineering, management science, psychology, sociology, and anthropology. Early research and development in human-computer interaction focused on issues directly related to the user interface. Some typical issues were the properties of various input and output devices, interface learnability for new users versus efficiency and extensibility for experienced users, and the appropriate combination of interaction components such as command languages, menus, and graphical user interfaces (GUI). Recently, the field of human-computer interaction has broadened and become more attentive to the processes and context for the user interface. The focus of research and development is now on understanding the relationships among users' goals and objectives, their personal capabilities, the social environment, and the designed artifacts with which they interact. As an applied field, human-computer interaction is also concerned with the development process used to create the interactive system and its value for the human user.

The interfaces and processes that make up human-computer interaction are understood and advanced through a variety of methods. At one level, this interaction can be characterized by the capabilities and processes of the human and the computer to accept input, process that input, and generate output. The computer capabilities include the hardware (input and output devices) such as the monitor, mouse, keyboard, and Internet connection. These devices reflect contributions from computer science and engineering, whereas the human capabilities, both mental and physical, are understood through cognitive science and ergonomics. At another level, the interaction between the computer and the human consists of user interface software which governs the meanings of the inputs and outputs for the computer, as well as the corresponding rules and expectations that the user applies to generate meaningful actions. The user's internal model of the interaction is supported by visual cues in the interface and designed in accordance with principles of human factors. At a higher level, this interaction includes the context of goals, motivations, and other people and resources that determine what the person is doing. Understanding the process at this level requires insights from social and organizational sciences.

Advances in computer science have significantly increased the processing power of computers while decreasing their size. These advances have provided the underlying technology for creating a wider variety of human-computer interactions. For example, streaming audio and video over the Internet, now common, would not be possible without the increased processing power and network connectivity of computers. These technological developments were influenced by the discovery of useful applications in human-computer interaction. Increasingly sophisticated software has become available to address input through natural speech and immersive environments, providing a virtual reality experience.

Developing human-computer interactions involves design on both sides of the interaction. On the technology side, the designer must have a thorough understanding of the available hardware and software components and tools. On the human side, the designer must have a good understanding of how humans learn and work with computers, including envisioning new modes of working. The designer's task is to create effective, efficient, and satisfying interactions by balancing factors such as cost, benefits, standards, and the environmental constraints in which the interaction will take place.

2) From the definition of Human Computer Interaction you have known this subject interested with three related things: Human, Computer, and Interaction. As well as we will cover some other subjects such as HTML and CSS to design web pages and to implement the theoretical concepts in this course.

3) The main goal of study Visual Application is to design an efficient application that meet the users demands.

The sub goals in this course are:

- Create usable software-enabled products and user-interfaces
- Enhance the usability of existing products
- Identify problems and tasks (such as in the workplace) that can be addressed with software products
- Learn HTML
- Learn CSS
- Learn HTML5

Why is HCI important?

• In order to achieve efficient, effective and safe products/systems:

– Productivity (introducing technology that does not support the work may cause reduced productivity)

– Safety (crashed air planes and nuclear power plant disasters have led to an understanding why HCI is important!)

Computers should be designed for the needs and capabilities of the people for whom they are intended!

• The interface is not a "later problem"

• Products and systems cannot be developed and designed using the developers/designers themselves as the norm

• Users might not have a great interest in technology

• Users rarely read manuals and instructions