Outline

- The Team: GVC – UA
- Basis on Vision Sciences
- Colour Technology and Science
  - Technological Offer – Capabilities
- Visual Ergonomics
  - Technological Offer – Capabilities
- Conclusions
The Team: GVC – UA

http://www.ua.es/en/area/vision_color
Basis on Vision Sciences (I)

- What is Human Vision?
  - Eye + Brain
  - Interpretation of the information contained into the retinal images from both eyes by means of representation and encoding internal systems
Basis on Vision Sciences (II)

- Approaches for human vision:
  - Neurophysiologic (hardware): neural medium
  - Psychophysical: response – stimulus relation
  - Perceptual (software): integration and interpretation

- Types of visual information processing:
  - Form, detail, colour, motion, depth and 3-D position, eye movements, etc
  - Integration next to other sensorial systems
    - Hand – Eye Coordination, etc
Colour Technology & Science

- **Colour Technology:**
  - Study of methods and techniques which are used to design, manufacture and measure coloured objects

- **Associated industrial sectors:**
  - Color Chemistry for textile fibres, plastics, coatings, cosmetics, etc
  - Graphic Arts
    - Printing technologies
  - Multimedia
    - Displays, videogames, etc
Our capability and offer (I)

- Equipment:
  - Tele-spectro-radiometer
    - Colorimetric, photometric and radiometric measurements without contact, and adjusted to the size of the target
  - Multi-gonio-spectrophotometer
    - Measurement of colour appearance of metallic and iridescent objects (colour change according to viewing direction)
Our capability and offer (II)

- **Offers:**
  - Spectral and colour characterization of:
    - Fluorescent, metallic and iridescent objects
    - Optical formulation of dyes and pigments
    - Multi-spectral imaging
  - Coloration of materials
    - New materials, nano-pigments, etc
  - Colour imaging
    - Digital colour reproduction: capture, displays, etc
    - Colour appearance: difference between images
    - Visual appearance simulation of 3-D objects, etc
  - Colour and lighting psychology, etc
Visual Ergonomics

- Environment – Machine – Eye interaction:
  - Applied and theoretical projects where the human vision performs an important role in the optimization and development of industrial processes, and, in the visual comfort and security of leisure and work activities

- It is a science derived from technology
  - Always existing in the development and optimization of prototypes
  - Inter-disciplinary and multi-disciplinary
Visual Ergonomics

- Associated industrial sectors:
  - Ocular protection:
    - Radiations (UV, laser, etc)
    - Impacts, etc
  - Lighting
  - Driving and Vision
  - Multimedia (displays, videogames, etc)
Our capability and offer (III)

- Lighting design
  - Lamp selection
  - Direct and indirect
  - Interior
  - Exterior

- Visual performance
  - Visibility of tasks
  - Work visual standards
  - Functional vision and ageing
  - Visual training
    - Eye movements, depth, colour, motion, etc

- Adjustment of displays

- Visual signalling for special users with different conditions
Conclusions

- The Colour & Vision Group is:
  - involved in the search of technological-scientific solutions where the human vision performs an important role in:
    - Optimization and development of industrial processes, even prototypes
    - Visual comfort and security of leisure and work activities
  - Inter-disciplinary:
    - Needs the cooperation from other disciplines
    - Physics (Optics), Chemistry, Biology, Psychology, Medicine, Materials Engineering, etc
  - Multi-disciplinary:
    - Applicable to some technological-scientific fields
¡¡ Stand by us !!
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