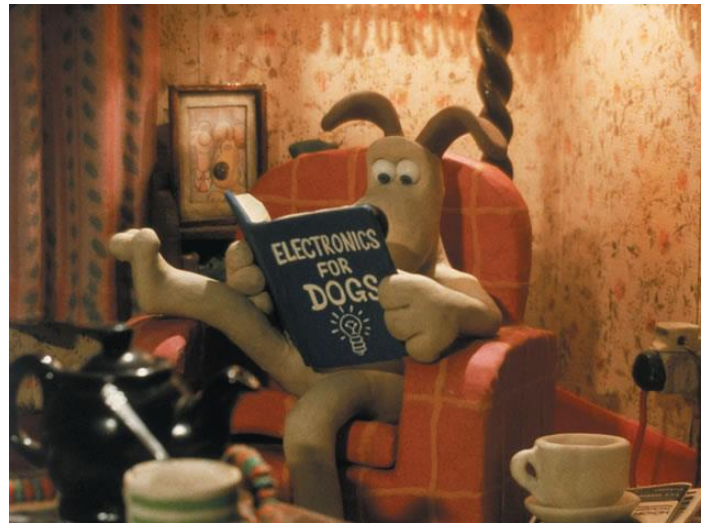


# Creative Electronics



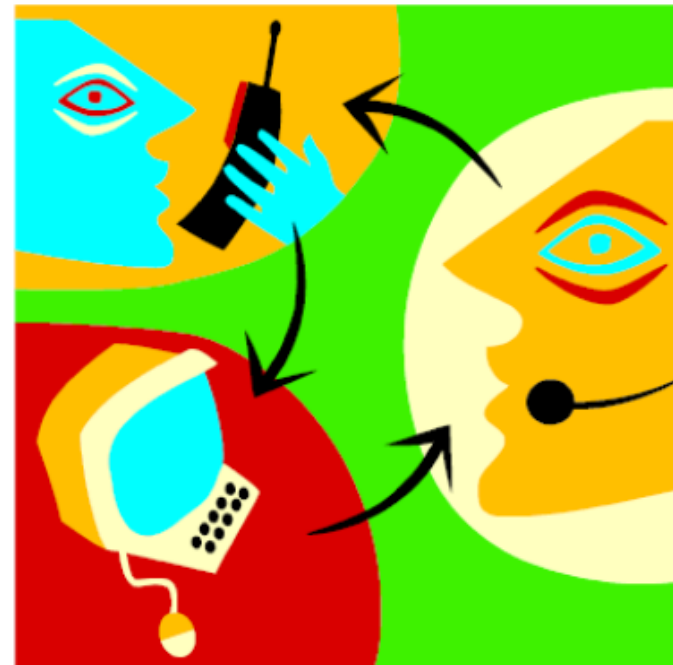
This assignment will introduce you into the world of electrical engineering and electronics

# The assignors

- Dr. Wei Chen (responsible assignor)
  - Geert van den Boomen
    - Ir. Peter Peters
    - Dr. ir. Jan Rouvroye
- Harrie Kuipers (EE department)

# Why electronics

- Computers & Internet
- TV & Mobile Phones
- CDs & DVDs
- MP3 & ipod
- GPS navigation
- Digital Cameras
- Robots
- Health Monitoring
- Virtual Reality
- Ambient Intelligence
- ...



# Example design projects



sensors,  
impedance,  
filters,  
...

Smart jacket for NICU, M2.2 project, designed by Sibrecht Bouwstra

# Objectives of this assignment

- Introduce the most important concepts and knowledge of EEE (what does it stand for?)
- Introduce equipments and methods for practical measurements
- Understand and design simple electronic circuits
- Hands-on skills through practical experiments
- Target competency area: Integrating Technology

# Schedule

Date	Time	Space	Lecture	Assignor
10-11-2014	10.45 - 12:30	PT 1.05	Reader chapter 1-3	Harrie Kuipers
13-11-2014	09.00 - 12.00	E-Atelier	E-workshop. Practical assignment 1 (group 1)	3 Assignors
13-11-2014	13:45 - 16:30	E-Atelier	E-workshop. Practical assignment 1 (group 2)	3 Assignors
17-11-2014	10.45 - 12:30	PT 1.05	Reader chapter 4-5, Practical assignments: 1,2	Harrie Kuipers
20-11-2014	13:45 - 15:30	PAV J17	Reader chapter 6-7. Practical assignments: 3,4	Harrie Kuipers
24-11-2014	10.45 - 12:30	PT 1.05	Reader chapter 8-9. Practical assignments: 5,6	Harrie Kuipers
27-11-2014	13:45 - 15:30	PAV J17	Opamps, sensors actuators, CHS, Practical assignment 7	Harrie Kuipers
1-12-2014	10.45 - 12:30	E-Atelier	Building block: Central heating system	All assignors
4-12-2014	13:45 - 17:30	HG 4.57	Start mini project, Arduino workshop	Peter Peters, Jan Rouvroye
8-12-2014	10.45 - 12:30	HG 4.24	Present project proposal (group 1)	All assignors
8-12-2014	10.45 - 12:30	HG 4.57	Present project proposal (group 2)	All assignors
11-12-2014	13.45 - 15:30	E-Atelier	Mini project help	All
15-12-2014	10.45 - 12:30	E-Atelier	Mini project help	All
18-12-2014	13:45 - 15:30	HG 4.57	Exhibition with poster for mini project	All assignors

# Wiki

URL:

<http://wiki.id.tue.nl/ce/CreativeElectronicsAssignment201411>

## Everything you need:

1. Assignment resources
2. Schedule
3. Lecture and workshop materials and instructions
4. Deliverables
5. Arduino install

# The Creative Electronics Reader

1. A starting point for understanding the various topics and its relation to each other.
2. You will be challenged to study alternative sources.
3. Questions (mandatory), exercises (optional), practical assignments (mandatory).

## Icons:



an important note



a question which you have to answer



an example which clarifies the discussed theory



an optional exercise which will help you in understanding formulas and gaining insights



a practical assignment which you have to do



# Deliverables

- Weekly rough draft *individual* (handwritten) results on the **questions**. Weekly feedback.
- Pairs deliver a **final report** covering all the practical assignments. Details: see Wiki.
- Presenting the **central heating system** (final assignment). Assessment: individual interview.
- Presenting a mini poster and the results on the **mini project**. Assessment: individual interview.

# Getting help

- Lecturers, assignors, E-atelier
- Your fellow students
- Reference books:
  - “ Principles and applications of electrical engineering”,*  
Giorgio Rizzoni,  
Rev. 4th ed. *Publisher London : McGraw-Hill, 2004*
- Internet
- Non-technical questions:
  - Your coaches
  - Study advisor

# Good learning

- Concept: get the idea in the lectures
- Compute: do the questions THINK!
- Compare: work in labs to “convert mind to motion”
- Communicate: work in groups, discuss
- (But) Do not copy or cheat on assessment work

# Furthermore

- You will work in pairs.
- A coach for every four pairs.
- Start using a log.
- Tools (breadboard, pliers, Arduino, digital multi-meter): E-Lucid/E-atelier.
- Electronic parts for the first part of this assignment: provide by us.