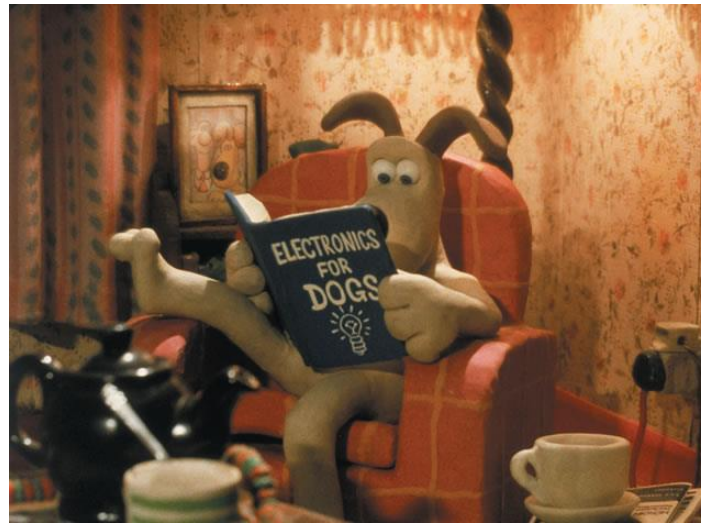


Creative Electronics



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

The assignors

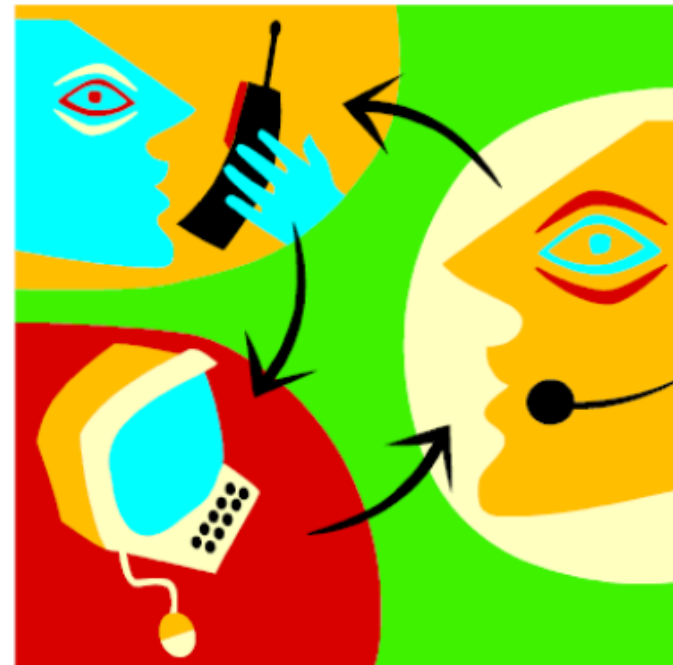
- Geert van den Boomen
- Dr. Ir. Peter Peters (responsible assignor)
 - Dr. ir. Jan Rouvroye
- Harrie Kuipers (EE department)

Student-assistants:

Jasper Sleumer, Femke de Bot, Jasper van der Zandt, Sander Verdiesen, Roel Gudden, Stefan Molenschot, Linda Janssen, Annemiek Veldhuis,
Marius Ursu

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 EE (what does it stand for?)
- Introduce equipment 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
Tue 09-06-2016	15.45 - 17.30	AUD 3	Introduction and reader chapter 2-3
Thu 09-08-2016	09.00 - 12.00	LG 0.60 and FLX 0.129	E-workshop, practical assignment 1-2 (Group 1)
Tue 09-13-2016	13.30 - 16.30	LG 0.60 and FLX 0.129	E-workshop, practical assignment 1-2 (Group 2)
Thu 09-15-2016	08.45 - 10.30	Gemini Z.	Reader chapter 4, practical assignment 2
Tue 09-20-2016	15.45 - 17.30	AUD 3	Reader chapter 5
Thu 09-22-2016	08.45 - 10.30	Gemini Z.	Reader chapter 6-7, practical assignments 3-4
Tue 09-27-2016	15.45 - 17.30	AUD 3	Reader chapter 8-9, practical assignments 5-6
Thu 09-29-2016	08.45 - 10.30	Gemini Z.	Reader chapter 10, sensors, intro heating system
Tue 10-04-2016	15.45 - 17.30	LG 0.60 and FLX 0.129	Help session heating system
Thu 10-06-2016	08.45 - 10.30	LG 0.60 and FLX 0.129	Presentation heating system
Tue 10-11-2016	15.45 - 17.30	LG 0.60 and FLX 0.129	Start mini project, Arduino workshop
Thu 10-13-2016	08.45 - 10.30	t.b.a.	Presentation project proposal
Tue 10-18-2016	15.45 - 17.30	LG 0.60 and FLX 0.129	Help session mini project
Thu 10-20-2016	08.45 - 10.30	LG 0.60 and FLX 0.129	Help session mini project
Tue 10-25-2016	15.45 - 17.30	LG 0.60 and FLX 0.129	Help session mini project
Thu 10-27-2016	08.45 - 10.30	t.b.a.	Exhibition with poster mini project

Wiki

URL:

wiki.id.tue.nl/ce/CreativeElectronicsAssignment201609

Everything you need:

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

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

- Rough draft *individual* (handwritten) results on the readers **questions**. Weekly feedback.
- Weekly reporting by the *pairs* on the **practical assignments** (pdf/Word). Weekly feedback.
- Pairs deliver a **final report** covering all the practical assignments. Details, deadline: 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.
- Check the Wiki deadlines overview.....

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 five 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: provided by us.