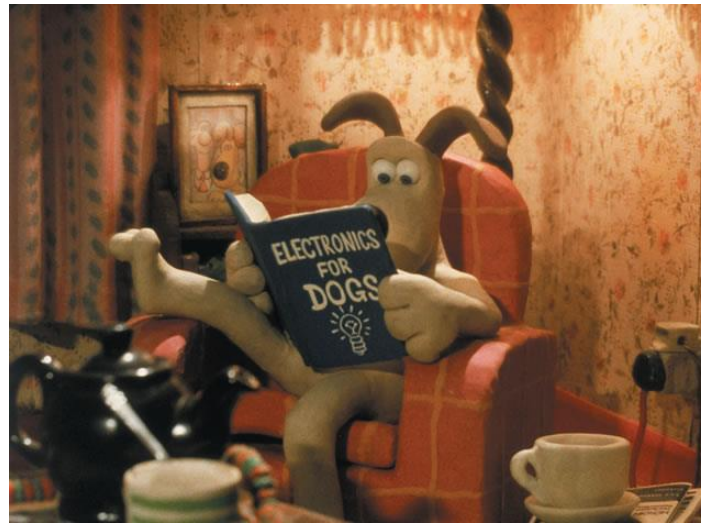


Creative Electronics



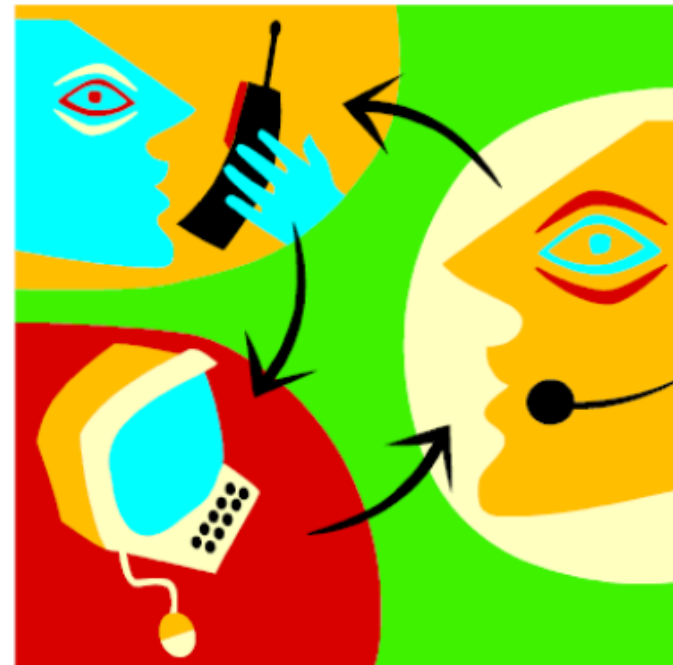
This assignment will introduce you into the world of electrical engineering and electronics

The assignors

- Geert van den Boomen
 - Henk Apeldoorn
- Dr. Ir. Peter Peters (responsible assignor)
 - 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 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
Mon 04-18-2016	13.45 - 15.30	Matrix 1.41	Introduction and reader chapter 2-3
Wed 04-20-2016	09.00 - 12.00	LG 0.60 (E-lab)	E-workshop, practical assignment 1-2 (Group 1)
Mon 04-25-2016	13.30 - 16.30	LG 0.60 (E-lab)	E-workshop, practical assignment 1-2 (Group 2)
Mon 05-02-2016	13.45 - 15.30	Matrix 1.41	Reader chapter 4, practical assignment 2
Wed 05-04-2016	10.45 - 12.30	Matrix 1.41	Reader chapter 5
Mon 05-09-2016	13.45 - 15.30	Matrix 1.41	Reader chapter 6-7, practical assignments 3-4
Wed 05-11-2016	10.45 - 12.30	Matrix 1.41	Reader chapter 8-9, practical assignments 5-6
Wed 05-18-2016	10.45 - 12.30	Matrix 1.41	Reader chapter 10, sensors, intro heating system
Mon 05-23-2016	13.45 - 15.30	LG 0.60 (E-lab)	Help session heating system
Wed 05-25-2016	10.45 - 12.30	LG 0.60 (E-lab)	Presentation heating system
Mon 05-30-2016	13.45 - 15.30	Matrix 1.41	Start mini project, Arduino workshop
Wed 06-01-2016	10.45 - 12.30	LG 0.60 (E-lab)	Arduino workshop / practice
Mon 06-06-2016	13.45 - 15.30	t.b.a.	Presentation project proposal
Wed 06-08-2016	10.45 - 12.30	LG 0.60 (E-lab)	Help session mini project
Mon 06-13-2016	13.45 - 15.30	LG 0.60 (E-lab)	Help session mini project
Wed 06-15-2016	10.45 - 12.30	LG 0.60 (E-lab)	Exhibition with poster mini project

Wiki

URL:

wiki.id.tue.nl/ce/CreativeElectronicsAssignment201604

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 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: provided by us.