Creative Electronics

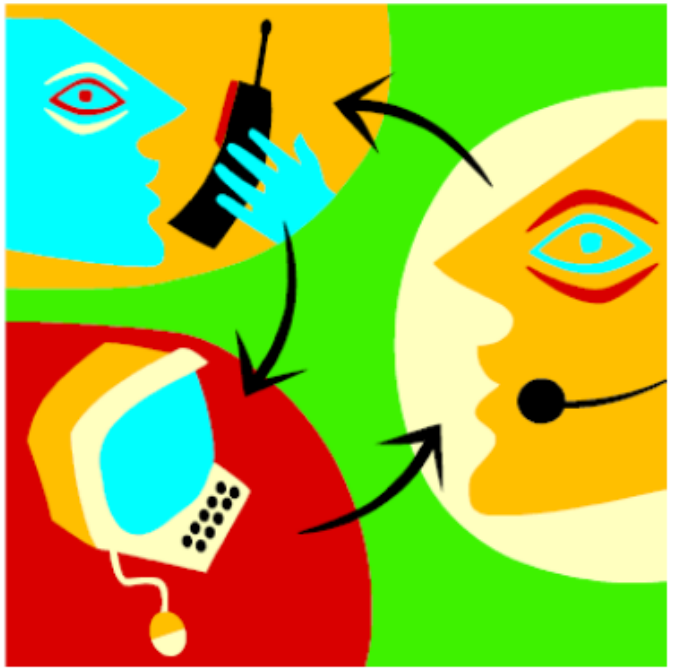
This assignment will introduce you into the world of electrical engineering and electronics

The assignors

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

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 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
mon 09-11-2015	13:45-15:30	METAFORUM 8	Reader chapter 1-3
wed 11-11-2015	09:00-12:00	LG 0.60 (E Lab)	E-workshop. Practical assignment 1-2 (Group 1)
mon 16-11-2015	13:30-16:30	LG 0.60 (E Lab)	E-workshop. Practical assignment 1-2 (Group 2)
wed 18-11-2015	10:45-12:30	LG 1.105	Reader chapter 4, Practical assignments: 2
mon 23-11-2015	13:45-15:30	MF 8	Reader chapter 5
wed 25-11-2015	10:45-12:30	LG 1.105	Reader chapter 6-7. Practical assignments: 3-4
mon 30-11-2015	13:45-15:30	MF 8	Reader chapter 8-9, Practical assignment 5-6
wed 02-12-2015	10:45-12:30	LG 1.105	Reader chapter 10, Intro heating system
mon 07-12-2015	13:45-15:30	LG 0.60 (E Lab)	Help session heating system
wed 09-12-2015	10:45-12:30	LG 0.60 (E Lab)	Presentation heating system
mon 14-12-2015	13:45-15:30	METAFORUM 8	Start mini project, Arduino workshop
wed 16-12-2015	10:45-12:30	LG 1.105	Mini-project proposal (Group 1)
wed 16-12-2015	10:45-12:30	LG 0.60 (E Lab)	Mini-project proposal (Group 2)
mon 04-01-2016	13:45-15:30	LAPLACE-GEBOUW 0.60 (E Lab)	Help session
wed 06-01-2016	10:45-12:30	LAPLACE-GEBOUW 0.60 (E Lab)	Help session
mon 11-01-2016	13:45-15:30	LAPLACE-GEBOUW 0.60 (E Lab)	Help session
wed 13-01-2016	10:45-12:30	LG 1.105	Mini project demo (Group 1)
wed 13-01-2016	10:45-12:30	LG 0.60 (E Lab)	Mini project demo (Group 2)

Wiki

URL:

wiki.id.tue.nl/ce/CreativeElectronicsAssignment201509

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
E	an example which clearifies 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 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: 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, plyers, Arduino, digital multi-meter): E-Lucid/E-atelier.
- Electronic parts for the first part of this assignment: provide by us.