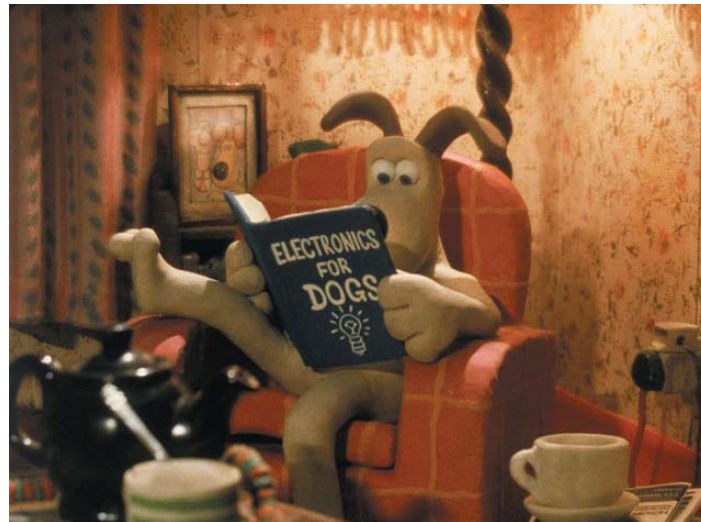


Creative Electronics



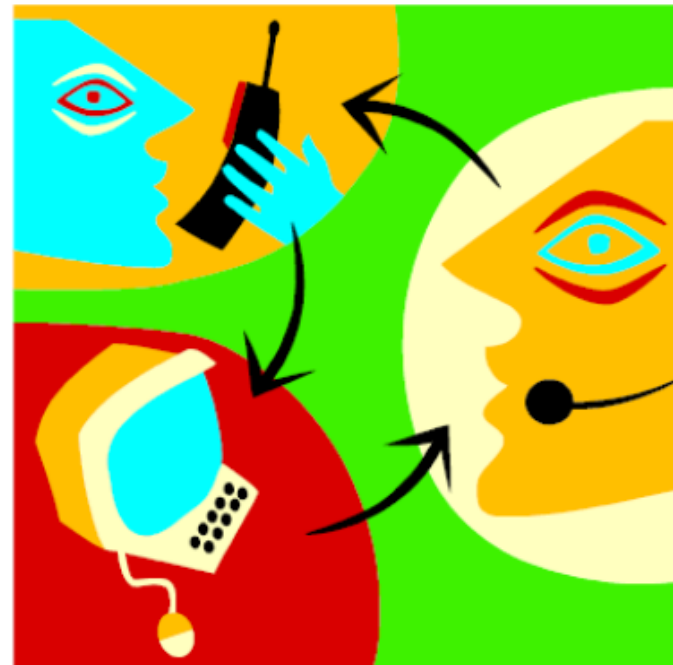
This assignment will introduce you into the world of electrical engineering and electronics

The assignors

- Dr. Wei Chen (responsible assignor)
 - Geert van den Boomen
 - Dr. 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
mon 20-04-2015	15:45-17:30	LAPLACE-GEBOUW 1.105	Reader chapter 1-3	Harrie Kuipers
wed 22-04-2015	08:45-12:30	LAPLACE-GEBOUW 0.60 (E Lab)	E-workshop. Practical assignment 1 (Group 1)	3 Assignors
wed 22-04-2015	13:45-17:30	LAPLACE-GEBOUW 0.60 (E Lab)	E-workshop. Practical assignment 1 (Group 2)	3 Assignors
wed 29-04-2015	10:45-12:30	MATRIX 1.41	Reader chapter 4-5, Practical assignment: 2	Harrie Kuipers
wed 06-05-2015	10:45-12:30	MATRIX 1.41	Reader chapter 6-7. Practical assignment: 3	Wei Chen
mon 11-05-2015	15:45-17:30	LAPLACE-GEBOUW 1.105	Reader chapter 8-9. Practical assignment: 4,5	Harrie Kuipers
wed 13-05-2015	10:45-12:30	MATRIX 1.41	Opamps, sensors actuators, CHS, Practical assignment 6	Harrie Kuipers
mon 18-05-2015	15:45-17:30	LAPLACE-GEBOUW 0.60 (E Lab)	Building block: Central heating system	All assignors
wed 20-05-2015	08:45-12:30	AUDITORIUM 14	Start mini project, Arduino workshop	Rouvroye, Geert van den Boomen
wed 27-05-2015	10:45-12:30	PAVILJOEN A12 a	Present project proposal (Group 1)	All
wed 27-05-2015	10:45-12:30	PAVILJOEN A12 b	Present project proposal (Group 2)	All
mon 01-06-2015	15:45-17:30	LAPLACE-GEBOUW 0.60 (E Lab)	Mini project help	All
mon 08-06-2015	15:45-17:30	LAPLACE-GEBOUW 1.105	Mini project demo	All

Wiki

URL:

<http://wiki.id.tue.nl/ce/CreativeElectronicsAssignment201504>

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.
- 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.

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.