FUNDAMENTALS OF ELECTRONIC CIRCUITS
Fundamentals of Electronic Circuits

Professor Gabriel Oltean, Ph.D.

5 ECTS: 125 h

2 C: 28 h
1 L: 14 h
1 S: 14 h

69 h individual study
## Objectives

<table>
<thead>
<tr>
<th>Understanding the <strong>operating principles</strong> of <strong>electronic devices</strong> and <strong>fundamental electronic circuits</strong></th>
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<tbody>
<tr>
<td><strong>Using</strong> the electronic devices in different electronic circuits</td>
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<tr>
<td><strong>Analysis</strong> and <strong>(re)design</strong> electronic circuits</td>
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Course

High level of involvement of the students

It is recommended to read (study) in advance the topics of the course

Presentations, questions, discussions, problem solving...
Dedicated web page

www.bel.utcluj.ro/dce/didactic/fec_aai/

- Course presentations
- Laboratory materials
- Seminar materials
- Problems and subjects for exam
- Miscellanea
- Problems and subjects for exam
Content

- Fundamentals
- Diodes
- Logic circuits (CMOS)
- Op-amp comparator
- Op-amp amplifiers

- Voltage regulators
- Integrated voltage regulators
- Sinusoidal oscillators
- Nonsinusoidal signals generators

Student Assessment (formative and summative)

- Exam (E) + Lab (L) + Seminar (S)
- E: problem solving: 0…10 pts
- L: full attendance + activity: 0…10 pts
- S: attendance + activity: 0…10 pts

Not admitted to exam
Not admitted to exam
Grade = 1…4
Fail

Grade = 0.5E+0.25L+0.25S
Pass

0.5E+0.25L+0.25S ≥ 4.5

L ≥ 5p

E ≥ 4p

Yes

Yes

Yes
Illustration

**Ex 1**

E = 8; L = 10; S = 9

\[0.5 \cdot 8 + 0.25 \cdot 10 + 0.25 \cdot 9 = 8.75; \quad \text{Grade (rounded): 9}\]

**Ex 2**

E = 4; L = 8.5; S = 2

\[0.5 \cdot 4 + 0.25 \cdot 8.5 + 0.25 \cdot 2 = 4.625; \quad \text{Grade (rounded): 5}\]

**Ex 3**

E = 4; L = 6; S = 3

\[0.5 \cdot 4 + 0.25 \cdot 6 + 0.25 \cdot 3 = 4.25; \quad \text{Grade (rounded): 4}\]
Experience and Learning

WE TEND TO REMEMBER...

10% of what we read
20% of what we hear
30% of what we see

50% of what we hear and see

70% of what we say
90% of what we both say and do

OUR LEVEL OF INVOLVEMENT

CONVEX OF LEARNING: Edgar Dale

Verbal Receiving
Visual Receiving
Receiving and Participating
Doing

PASSIVE

ACTIVE

READING
HEARING WORDS
LOOKING AT PICTURES
WATCHING A VIDEO
LOOKING AT AN EXHIBIT
WATCHING A DEMONSTRATION
SEEING IT DONE ON LOCATION
PARTICIPATING IN A CLASS DISCUSSION
GIVING A TALK / TELLING A STORY
DOING A DRAMATIC PRESENTATION
SIMULATING THE REAL THING
DOING THE REAL THING
DOING THE REAL REAL THING