

LINEAR ELECTRONIC CIRCUITS



Linear 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



Understanding the **operating principles** of **electronic devices** and **fundamental electronic circuits**

Using the electronic devices in different electronic circuits

Analysis and (re)**design** electronic circuits

Course

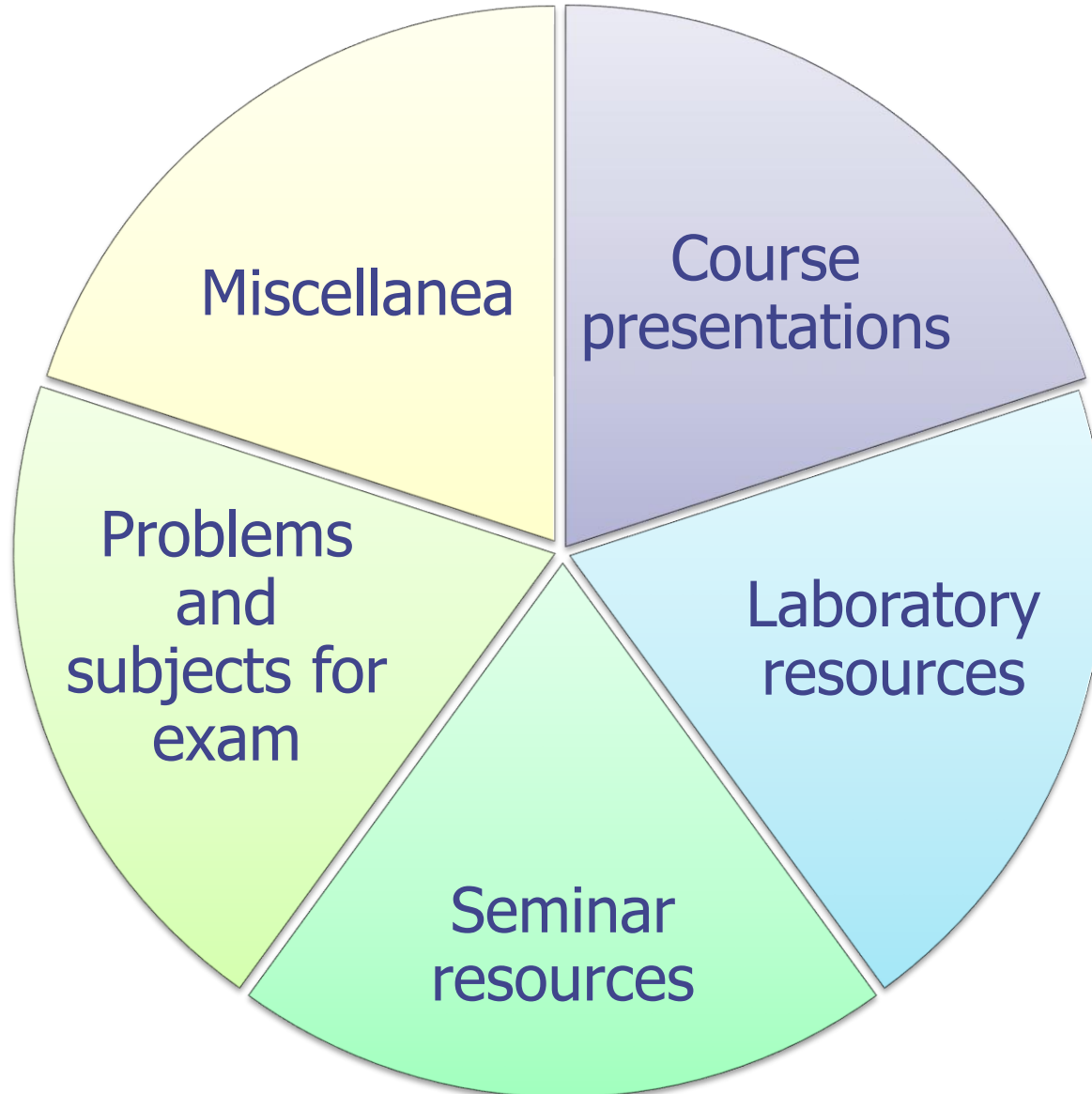
High level of involvement of the students

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/lec/



Content

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

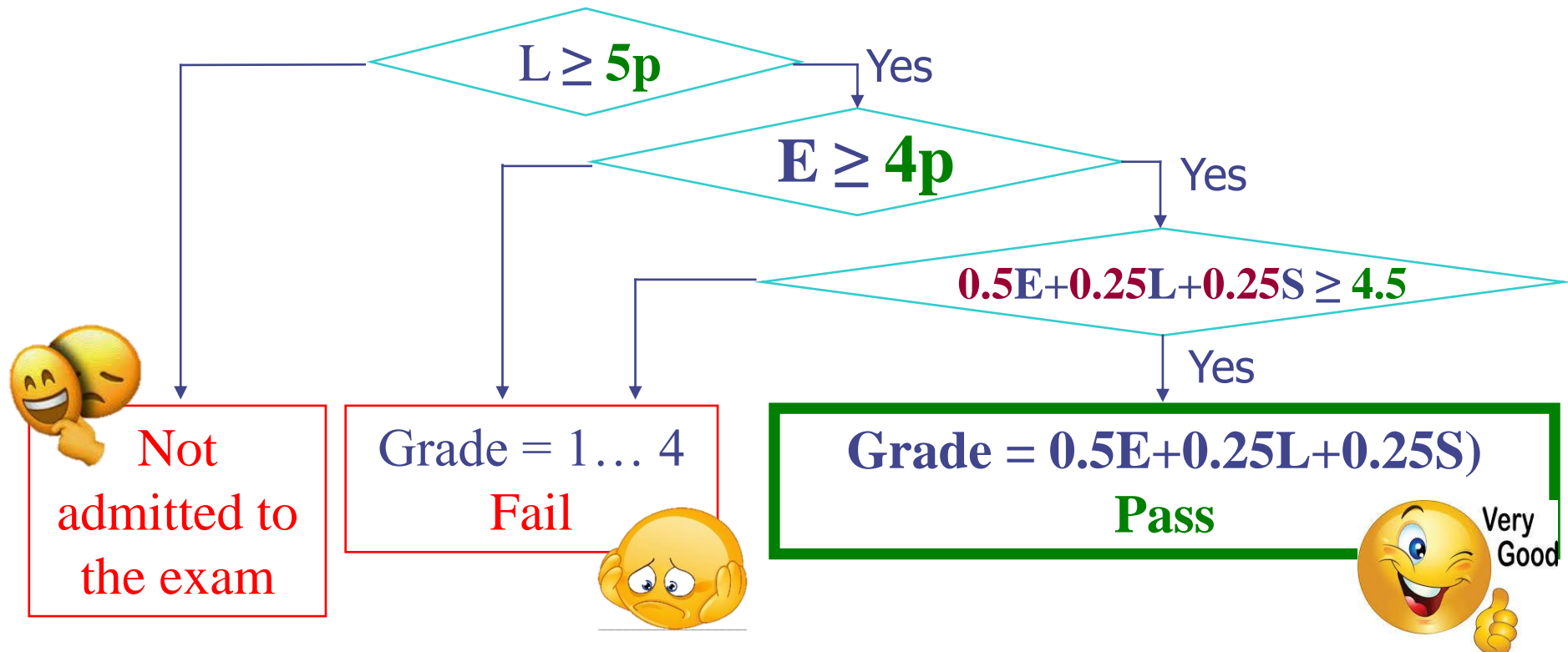
- ❖ Voltage regulators
- ❖ Integrated voltage regulators
- ❖ Sinusoidal oscillators
- ❖ Nonsinusoidal signals generators

- Oltean, G., Electronic Devices, Editura U.T. Pres, Cluj-Napoca, ISBN 973-662-220-7, 2006; 317 pp.

- ❖ Oltean, G., Circuite Electronice, UT Pres, Cluj-Napoca, 2007, ISBN 978-973-662-300-4, 203 pag

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



Illustration

Ex 1

$$E = 8; L = 10; S = 9$$

$$0.5 \cdot 8 + 0.25 \cdot 10 + 0.25 \cdot 9 = 8.75; \text{ Grade (rounded): } \mathbf{9}$$

Ex 2

$$E = 4; L = 8.5; S = 2$$

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

Ex 3

$$E = 4; L = 6; S = 3$$

$$0.5 \cdot 4 + 0.25 \cdot 6 + 0.25 \cdot 3 = 4.25; \text{ Grade (rounded): } \mathbf{4}$$

Ex 4

$$E = 3.9; L = 7; S = 8$$

$$\text{Grade: } \mathbf{4}$$

Experience and Learning

WE TEND TO REMEMBER...

OUR LEVEL OF INVOLVEMENT

CONE OF LEARNING: Edgar Dale

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

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

Verbal receiving

Visual Receiving

Receiving and Participating

Doing

PASSIVE

ACTIVE