

Introduction to Electronic Circuits

Lecture 14/12/2020, 14:15-16:00,

Lecture 21/12/2020, 14:15-15:00

and

Laboratory, date to be agreed with the teacher
room EA322 (old buiding)

Ph.D., D.Sc. Bogdan Pankiewicz - lecture, WETI PG room EA307

Consultations: Fridays 11:15 – 12:00 and 12:15-13:00

www.ue.eti.pg.gda.pl/~bpa/ec/

Labs conducted by: Ph.D. Jacek Jakusz (chairman of labs, room EA305), Ph.D., D.Sc. Grzegorz Blakiewicz and Ph.D. Waldemar Jendernalik

Lecture content

- Symbols used for voltages and currents description
- BJT DC model for OP calculations
- Small-signal hybrid-pi BJT model
- CE, CC and CB configurations
- Current mirror subcircuit
- Differential pair
- Simple Operational Amplifier (OpAmp)
- Application of OpAmp

Laboratory

- Please consult terms with the lab chairman
- Lab chairman: Ph.D. Jacek Jakusz, room EA305, phone (+48) 58 347 2145, email jacj@eti.pg.edu.pl,
- Grzegorz Blakiewicz, PhD – room EA 305, phone (+48) 58 347 2145, email blak@eti.pg.edu.pl

Labs – subjects of exercises

- Lab 1A – ”Examination of the input amplifier stage in operational amplifier”
- Lab 1B – ”Operational amplifier (dynamic characteristics)”
- Lab 1C – ”Operational amplifier examples of application”
- Lab 2 – ” Negative feedback”
- Lab 3 – ” Resonant amplifier”
- Lab 4A – ”Basic configurations of bipolar transistor”
- Lab 4B – ”Basic configurations of MOS transistor”
- Lab 5 – ”Audio amplifier”

Literature:

- 1) R. L. Geiger, P. E. Allen, N. R. Strader, „VLSI design techniques for analog and digital circuits“, McGraw-Hill 1990.
- 2) P. E. Allen, D. R. Holberg, „CMOS analog circuit design“, Sanders College Publishing, 1987.
- 3) P. R. Gray, R. G. Meyer, ”Analysis and design of analog integrated circuits”, John Wiley & Son, Inc. 1993.
- 4) C. Wai-Kai (editor), „The VLSI Handbook”, Taylor & Francis Group, 2007.