Course number: 361.1.3751

Prof. Mor M. Peretz

Mr. Tom Urkin

**Course Description:**
The scope of the course covers both *digital and analog design* based standard or custom cells development. The module is divided into two sections – frontal lectures and laboratory exercises. The lectures part will focus mainly on architecture and design considerations while the lab aim on practical and implantation issues:

- **Layout fundamentals, both digital & analog analysis** (passive components, variations, mismatches etc.).

**Course Objectives:**
To provide students hands-on knowledge and experience for VLSI mixed-signal IC design. Furthermore, to develop the necessary framework and tools to analyze and design such systems.

**Course Structure:**
Lecture: 1.0    Lab: 4.0

**Course requirements:** *(Include required pre-courses, compulsory attendance, etc.)*

1. Intended for students in specialization track of micro and nano electronics and VLSI.
2. Introduction to Digital Electronic Circuits.
3. Integrated Circuits and Introduction to VLSI (can be taken in parallel).
Structure of Final Course-Grade:
Homework assignments (4 to 5) and graded laboratory assignments.

Teaching assistants:
- Mr. Tom Urkin
  Reception hours: By appointment, Building 64, Room 12
  E-mail: tomur@post.bgu.ac.il

Description of Meetings (order may be modified)
1. Introduction
2. Digital Layout techniques
3. VLSI design reliability
4. Analog layout techniques
5. Passive components layout techniques
6. Differential amplifier – part a
7. Differential amplifier – part b
8. Analog-to-digital converter - part a
9. Analog-to-digital converter - part b
10. Delay-line
11. Delay-line ADC

References: