	Objectives of the class	Deliverables	Deadline	TA
Week 1: Introduction to bio-nano-chip design and conductive solutions	- Finding a brilliant project idea! - Evaluating the novelty of the idea by literature search	Individual project proposal	Week 2 - Friday, 17h00	Fra, GL, Ali
Week 2: Probes/Targets Building Blocks	- Project proposal writing according to the template			Francesca
Week 3: Probe/Target interactions	- Contact and meet team members as soon as possible - Focus on literature review to identify similar published works - identify biomaterial to sense and from which biofluid and identify required specification			
Week 4: Probe Detection Principles (Faradaic Processes)	- identify the strategy to recognize the chosen target molecule - Identify method (CV, CA, ...)			
Week 5: Probe Detection Principles (with Antibodies and DNA)	- Calculate area/ sensitivity			
Week 6: Probes immobilisation	- Literature analysis - Identify nanomaterials that can be used for increasing sensitivity and creating selectivity			GL
Week 7: Checking Probes-layer quality (RM+SPR+SEM+AFM)	- Identify possible undesidered interactions with other molecules and think how to prevent it			
Week 8: Nanotechnology to prevent Electron Transfer	- Identify sensitivity and specificity of the designed bio-nano probe Calculate/Discuss the improved sensitivity			
Week 9: Nanotechnology to enhance Electron Transfer	- 1 page max group progress report for weeks 1 to 5 (+1 page references)	Group progressive report	Week 9 - Friday, 17h00	
Week 10: CMOS Building Blocks	- Identify the adequate method for electrochemical sensing and design a signal conditioning unit for the proposed electrochemical sensor			Ali
Week 11: Circuits for metabolites detection in Fixed-Voltage	- Communication synthesis; - Unified system-level synthesis of Bio-Nano-CMOS-sensing device			
Week 12: Circuits for metabolites detection in Scanning Voltage	- Simulation of the proposed design using the LTspice software or similar			
Week 13: CMOS Circuits for DNA Detection	- Complete the front-end of the sensor at system level or transistor level by searching the market or designing the CMOS circuit - Presentation preparation	Group presentation	Week 14 - 11.00-13.00	
Week 14: Review	- Groups presentations - Final project report 3 pages (+1 page references) IEEE template	Final group project report	31.12.2024	Fra, GL, Ali