In-House Practical Training

Virtual Semiconductor Device Fabrication and Characterisation

Project Milestones

Task	Week							
	1	2	3	4	5	6	7	8
Literature search/general reading	—	—						
Technical reading (process/device)	—	—	—					
Technopreneurship exploration	—	—	—	—	—	—		
Familiarization with TCAD tools	—	—						
Design conceptualization/specification		—	—					
Design implementation/simulation			—	—	—	—		
Data collection/analysis/plotting			—	—	—	—	—	
Physical modeling/parameter extraction					—	—		
Model application/prediction						—	—	
Documentation/presentation		—	—	—	—	—	—	—

Project Deliverables

- A Design of Experiment (DOE) of the PN junction diode fabrication and characterisation implemented in TMA WorkBench (TWB).
- Cross-sectional views and doping profiles of various processing conditions of the diode.
- Current–voltage (I–V) characteristics of the diode under various processing/operating conditions.
- Graphical plots of the target–variable relations from the simulated numerical data.
- A systematic approach to diode model parameter extraction and prediction from TCAD data.
- A summary on the generalization of the Virtual Wafer Fab (VWF) technology to ULSI technology development and circuit design.
- A proposal ("business plan" or commercial exploitation) for the application of the VWF technology and its economical/technological impact.