European Doctoral Training Support in Micro/Nano-electronics-2

Grant Agreement Number FP7-SA 316513

Report 2 on Identification of new needs from industry

Deliverable D1.5

Work Package 1 – EURO-DOTS platform operation and course portfolio management

Author : Herman Maes **Approved by** : Steering Committee

Keyword : Needs from industry

Abstract :

In this Deliverable the working list with expressed needs from industry is provided which will be used in the remainder of EURO-DOTS-2 and also already in preparation of a EURO-DOTS-3 proposal.

Due Delivery Date : 31 January 2014

Status : Final Version **Actual Date of Delivery** : 21 January 2014

Dissemination Level : PU (Public)

Contents

1. INTRODUCTION 3
2. IDENTIFIED NEEDS 3

1. Introduction

We refer to Deliverable D1.2 for the full list of topics resulting from the inquiry among industry and academic groups. That list was used in a second round to extract the topics of high priority that were then selected for the 1st Call for Courses that was launched early November 2014. The results of this second round of discussions and the outcome of a third round in which among the course topics already those topics dealing with Smart System Integration were identified, are all included in the Table in section 2. This is the working list for the year 2014 and already a first attempt towards the project proposal EURO-DOTS-3 that the consortium intends to submit in ICT 2 -2014 and that will focusing on Smart System Integration.

2. Identified needs

In the Table all topics that were already discussed in Deliverable D1.2 are grouped in 3 categories : the first topics have been selected for the 1st Call for Courses, the second group contains all already identified topics of high priority that are linked to Smart System Integration. This list will be extended in the further course of EURO-DOTS-2 in preparation of the EURO-DOTS-3 proposal. Finally the Table also includes the other identified topics of which a number were also partly treated in one of the already orgabnized EURO-DOTS courses.

Call for Courses 1 : 1 November 2013	Comment
Biomedical electronics & biosensors	**Topic in Call 1 (Nov. 2013)**
Energy harvesting and autonomous applications	**Topic in Call 1/Smart System Integration**
High-frequency and mm-wave IC design	**Topic in Call 1 (Nov. 2013)**
Integrated high-voltage, high-power design & technology (GaN, SiC...)	**Topic in Call 1 (Nov. 2013)**
IP management, innovation and valorization (for PhD students)	**Topic in Call 1 (Nov. 2013)**
MEMS for RF applications	**Topic in Call 1/Smart System Integration**
Nanotechnology for Health	**Topic in Call 1 (Nov. 2013)**
Organic electronics: technology and design	**Topic in Call 1 (Nov. 2013)**
3D integration : technology and design	**Topic in Call 1/Smart System Integration**
Ultra Low-power techniques of IC design	**Topic in Call 1/Smart System Integration**
Variability effects and their mitigation in advanced technologies	**Topic in Call 1 (Nov. 2013)**
Smart System Integration	**Comment**
Advanced sensors and smart sensor systems	**Smart system integration**
Advanced signal processing for electronic systems	**Smart system integration**
Design for short-range applications (WSN, BAN...)	**Smart system integration**
Electronic system design flow; design of embedded systems & software	**Smart system integration**
Hardware and embedded software co-design	**Smart system integration**
Robust design	**Smart system integration**
Smart system integration	**Smart system integration**
Statistical modeling and simulation methodology	**Smart system integration**
Other topics of high importance	**Comment**
Advanced microprocessor architectures	
Basic elements of biology	**Partly covered in previous course(s)**
Basic high-voltage IC design techniques	**Partly covered in previous course(s)**
Broad knowledge of electronics (not just the subject of the thesis)	
Characterization techniques: RBS, SIMS, TEM, ...	
CMOS operation, CMOS scaling (advanced)	**Partly covered in previous course(s)**
CMOS processing: MBE, CVD, ALD, etch, litho…	**Partly covered in previous course(s)**
Design for high robustness (6 sigma, corner variations, rough environments)	
Design for testability (in a production environment with automated testers)	
Emerging materials and devices (advanced)	**Partly covered in previous course(s)**
Fundamental physics	**Partly covered in previous course(s)**
High-voltage devices	**Partly covered in previous course(s)**
Math skills, like statistics	
Power electronics	**Partly covered in previous course(s)**
Reliability and testing of ICs	**Partly covered in previous course(s)**
Security and dependability in electronic systems	**Partly covered in previous course(s)**
Safe state machine (hardware and software) design, formal proof	
Technology, processes to build devices	**Partly covered in previous course(s)**
Wide technical knowledge : e.g. system, process and modeling for designers	**Partly covered in previous course(s)**
Wide market knowledge: market analysis, societal analysis…	