EURO DOTS

European Doctoral Training Support in Micro/Nano-electronics

Grant Agreement Number 257051

Second shortlist of the EURO-DOTS Platform Program

Deliverable D4.7 –Report

Work Package 4 – EURO-DOTS Platform : set-up of working rules; Rules for attribution of scholarships; Call for courses

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Keywords : Report, Working rules, platform

Abstract :

In this Deliverable a second shortlist of the EURO-DOTS Platform Program are presented. This updates Deliverable 4.5.

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Dissemination Level : PU (Public)

1. Introduction

This document contains a second shortlist of the EURO-DOTS platform program. It is intended to cover all matters except those explicitly covered in the Consortium Agreement and in the Grant Agreement. In case an extension is granted for use of the EURODOTS scholarships, an update will be made after this extension. The rules have sections that are specific for the project period (May 1st 2010 – April 30th 2012) and for after completion of the project (from May 1st 2012).

2.   Planned versions

1. First draft version Nov. 1st 2010 (deliverable 4.1)

2. First shortlist version July 1st 2011 (deliverable 4.5, adding deliverable 4.2-4.4)

Coming version foreseen in DoW planning:

3. Second shortlist version May 1st 2012 (to be updated after completion of project) (deliverable 4.7)

3. Appendices, including previous deliverables

3.1 Deliverable 4.2

Form 1

Used for scholarship application. Filled in by student, certified by PhD advisor, checked by EURO-DOTS office. In separate file, should be resaved as a Word template without first page.

Form 2

Used for request of payment of scholarship. Filled in by student after completion of course, certified by PhD advisor, checked by EURO-DOTS office. In separate file, should be resaved as a Word template without first page.

3.2 Deliverable 4.4

Course Application Form (CAF)

Course applications are submitted by course organizers using the Course Application Form (CAF) with requested appendices (course description or invitation flyer).

Course Review Form (CRF)

The Course Review Form (CRF) is used by AC members for easy reviewing.

3.3 Deliverable 4.7

Course Review Excel Sheet (CRES)

This Excel sheet for multiple course reviews is used by AC members for easy reviewing. This supersedes the Course Review Form (CRF).

3.4 Calls for courses

1st Call for courses dated 2011-06-10
2nd Call for courses dated 2012-03-15

Part I Rules for the EURO-DOTS Platform

4. Working rules of the EURO-DOTS Platform

4.1. During the project (until April 30th 2012 but extended until December 31st 2012)
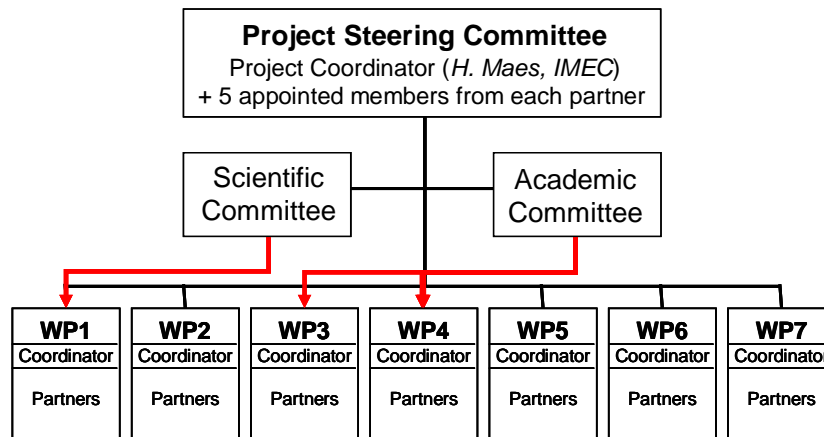

Figure 1. Structure from EURO-DOTS Description of Work, Part B p. 20.

The management structure of the EURO-DOTS support action is shown in Figure 1 above. The project steering committee will take all decisions during the project, except for the selection of course modules, see section 7 below. The Academic Committee has been installed consisting of eleven Professors from European Universities consisting of three members of the consortium (Carl-Mikael, Michel, and Georges) complemented with eight colleagues from universities outside the consortium.

4.2. After completion of the continuation project (2015?)
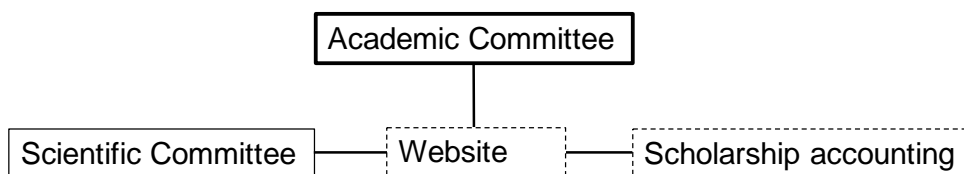
Figure 2. Proposed structure after completion of project (draft version)

The original idea was that once the project was completed, the Academic committee would continue the main work of the EURO-DOTS platform: selection and accreditation of course modules. The steering committee and its remaining roles would be taken over by the Academic Committee. However, two things happened:

1. an extension of the project period until Dec 2012 was approved, so that remaining scholarships could be approved

2. a continued project called EURO-DOTS-2 was submitted, and is presently in final negotiation.

Therefore the original management structure will continue until Dec 2012, when the EURO-DOTS-2 management structure takes over. The Scientific Committee and Academic Committee will be maintained.

5. Amendment of the rules

5.1. During the project (until April 30th 2012 but extended until December 31st 2012)
During the project the working rules for the EURO-DOTS platform are planned to be updated, see section 2 above. Changes will occur as result of requests from the steering committee. Major changes will be discussed at steering committee meetings. If needed, a vote will be held among the steering committee members, requiring a 2/3 majority for changes.

5.2. After completion of the continuation project (2015?)
In the continuation of the project, the Academic Committee will take over the management of working rules as well as all its other tasks. Amendment of the rules can take place at the management meetings of the Academic committee, or per capsulam. If needed, a vote will be held among the academic committee members, requiring a 2/3 majority rounded up for changes, for example 8 out of 11.

Part II Rules for the application and attribution of scholarships

6. Eligibility criteria for scholarships

In order to be eligible for a scholarship, a PhD student must fulfill a set of requirements, which were already listed in the DoW. These requirements have been reworded, and will be further edited at a later moment in the project using experience from awarding the scholarships. It is suggested that one form is used for the application and office use to simplify handling of scholarships (**Form 1**, appended). Initially the following criteria will be used:

1. **Proof of registration as a PhD student in a European university with final acceptance in the doctoral program of their university of origin.**
    This can be certified on **Form 1** by PhD advisor. The requirement regarding Doctoral program only applies if the university is organized into doctoral programs.

2. **The PhD work must have started.**
    This can be certified on **Form 1** by PhD advisor. The requirement should be stated by providing the official time of commencement of the PhD program.

3. **The course should fit sufficiently with the PhD topic of the student (short justification required) such that the student can directly benefit from it within his/her research program.**
    This can also be certified on **Form 1** by PhD advisor.

4. **Certificate from the PhD advisor that the acquired ECTS credits by the PhD student will be accepted by the home university (if applicable).**
    Also in **Form 1**.

5. **The student takes the engagement to take the exam.**
    Payment of the scholarship depends on the student finishing the course with some type of exam (see Deliverable 3.2), not just attendance. **Form 1**

6. **Scholarships are restricted to one per student and per year, during the PhD program (to be revised during the course of the project).**
    Form 1 can include information on previous scholarships and applications.

7. **Students can not apply for scholarships for courses organized by their home university.**
    This must be clearly stated on the website and **Form 1**.

8. **Evaluation by the students of the course they have taken, using the evaluation forms that will be provided, is compulsory.**
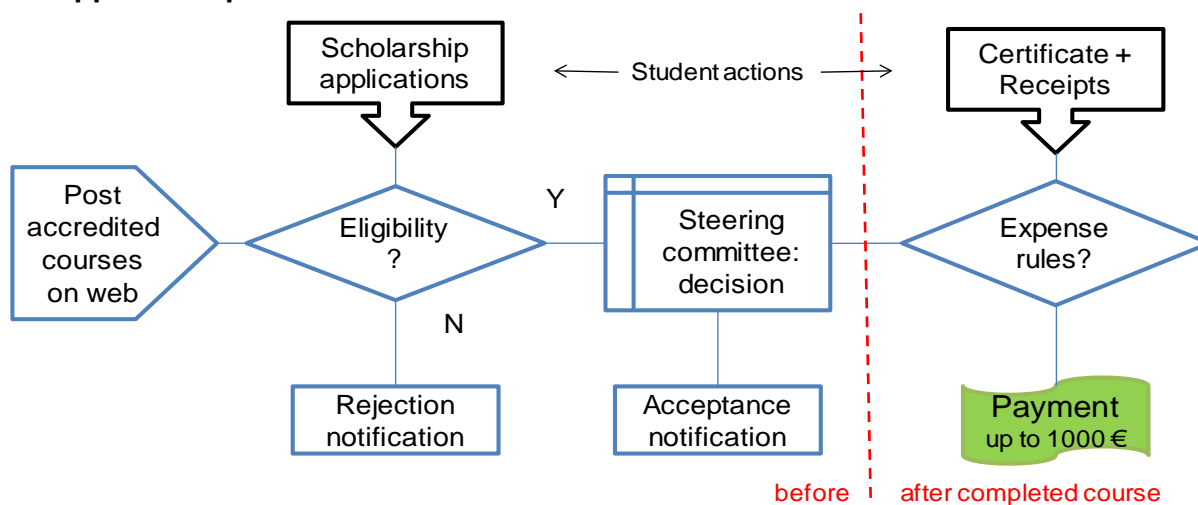
7. Application procedure

Figure 3. Proposed flow of scholarship applications

The flow of applications follows the proposed scheme in Figure 3 above.

1.	T-(2-6) months	Accredited courses are posted on the website.
2.	T-1 month	Last date to apply for a scholarship (online or emailed). **Form 1**
3.	T-3 weeks	Eligibility criteria are applied, ineligible students are notified.
4.	T-2 weeks	Decision is taken by the steering committee (via email or website)
		The first 10 registered students that fulfill the conditions are accepted.
5.	T-1 week	Students are notified of decision for scholarship.
6.	T	Course takes place
7.	T+1 month	Students complete the course (present the exam, fill the evaluation form).
		Students submit course certificate and receipts for expenses. **Form 2**
8.	T+2 months	Expense rules are applied (see below) and scholarship is paid (see 6).

Accredited courses are posted on the EURO-DOTS website along with a last date for application for scholarships that is set so that the decision can be taken well before the course starts. The suggested time frames can be tested and changed later. On one hand we would want to allow students ample time to plan their trip. On the other hand we want to make it possible for courses to be accredited in a late stage and still be eligible for scholarships.

The Steering committee originally decided that the student can get either:

1. 50% of the main expenses (course fee, travel, and hotel only)
   OR
2. 100% of the course fee

In any case, a cap of 1,000 Euro shall not be exceeded. The student should submit a budget and requested funding model at the time of application (see **Form 1**).

However, apparently this statement was confusing and was later adapted to read:

> The scholarship is to be used for the full course PhD registration fee. In case this fee is less than 1,000 Euro it can cover additional costs up to a total amount of 1,000 Euro.

In practice this means that 1,000 Euro is the amount paid from EURO-DOTS in all cases.

8. Selection procedure

After the eligibility criteria have been applied, there might still be more applicants than budgeted scholarships. Typically, a maximum of 10 scholarships will be allowed per course. Moreover, a maximum number of scholarships per provider and per year of 30 are considered. The Steering Committee however reserves the right to increase these numbers if considered appropriate. The assignment of the scholarship after all criteria are fulfilled will be based on time of application (first-come, first-served).

9. Payment of scholarship

Scholarships are paid after the issue of a certificate of completion (attendance, exam and course survey are required from the student). Depending on the student's selection of expense rules, receipts for course fee, travel, and hotel have to be submitted. In many cases it is the home institution of the student that pays for courses and travel, and in these cases the scholarship is paid to the university (which has paid the expenses in advance) rather than to the student. To assure that all banking details etc are correct, it is suggested that one form is used. The suggested **Form 2** is appended, to be filled in by the student after the course is completed.

Part III Constitution, tasks and working rules of an Academic Committee (AC)

10. Composition of academic committee

The Academic Committee has been installed consisting of eleven Professors from European Universities, with three members of the consortium complemented with eight colleagues from universities outside the consortium. The chair of the AC is selected among the ten members; initially one of the members of the consortium will act as chair. In cases when the vote is tied, the chair decides. The initial composition was discussed in October 2010, and invitations were sent by Herman Maes during November 2010 to the selected colleagues. A first meeting was held in April 2011 with parts of the following decided AC. A second meeting was held in December 2011, also including parts of the Scientific Committee, and at this meeting it was decided that an application for an extension called EURO-DOTS 2 would be made.

Last Name	First Name	Affiliation	Assignment	e-mail
Beenakker	Kees	TU Delft	External member	C.I.M.Beenakker@tudelft.nl
Bonnaud	Olivier	IETR	External Member	olivier.bonnaud@univ-rennes1.fr
Flandre	Denis	UCL	External member	denis.flandre@uclouvain.be
Glesner	Manfred	U. Darmstadt	External member	Manfred.Glesner@mes.tu-darmstadt.de
Gornik	Eric	U. Vienna	External member	erich.gornik@tuwien.ac.at
Greer	Jim	Tyndall	External member	jim.greer@tyndall.ie
Kuzmicz	Wieslaw	U. Warsaw	External member	wbk@imio.pw.edu.pl
Sangiorgi	Enrico	U. Bologna	External member	esangiorgi@arces.unibo.it
Declercq	Michel	EPFL	EURO-DOTS	michel.declercq@epfl.ch
Gielen	Georges	KU Leuven	EURO-DOTS	Georges.Gielen@esat.kuleuven.be
Zetterling	Carl-Mikael	KTH	EURO-DOTS, CHAIR	bellman@kth.se

11. Rotation of members, acquiring new members

It is suggested that a rotation schedule of two years is adapted, and approximately half of the members are replaced every two years. The maximum time for membership in the AC is four years, except for the initial EURO-DOTS project members who can stay for six years to get this started. The exact timing will be decided once the AC has its first annual meeting. New members can be suggested by the AC, the Steering Committee (for the first two years) and the Scientific Committee.

A simple majority vote is suggested for accepting new members. If AC members decide to quit in between biannual renewal, a new member may be selected with duration other than the standard two or four years. A list of potential members for the future should always be maintained for these kinds of situations. One of the first tasks is to discuss candidates for new members, and policy for distribution of members.

12. Tasks of academic committee

The role and tasks of the Academic Committee are the following:

1. Decision on the selection and accreditation of proposed courses for being accepted in the EURO-DOTS platform, based on the proposed criteria. Such decision will be made, based on a criteria list to be prepared and distributed by the WP4 coordinator;
2. Propose suggestions/adaptations to the Steering Committee regarding selection and eligibility criteria and rules for future courses and/or regarding the accreditation condition;
3. Act as a Sounding Board to the Steering Committee for the continuous improvement of the EURO-DOTS operation;
4. Support in the dissemination and promotion of the EURO-DOTS mission, program and approach and in the motivation of colleagues in their network for submission of new course modules;
5. Discussion and agreement on present and future tasks and role of the AC, with emphasis on the post-project period;
6. Involvement in the discussion on the continuation plans and financing of the EURO-DOTS platform;

13. Meetings

It was suggested that: management meetings are held twice a year, by preference at large European conferences relevant in the area, to save travel time and money for AC members. As some travel funds are however available initially during the project, it could be decided to hold dedicated AC meetings, and one was held December 14, 2011. Possible conferences for these meetings are ESSDERC/ESSCIRC (fall) and ULIS (spring). It is the task of the AC chair to arrange these meetings and to find a time slot where most can attend. Attendance of at least 50 % of the members should be aimed for. The main agenda for the management meetings are discussions of the course module selection procedure, course module quality, and how to recruit new course modules. Every two years, or if an AC member quits, new members should be proposed.

However, it was almost impossible to get consensus on what conference to meet at. One workshop was conducted at ESSDERC/ESSCIRC September 16, 2011 in Helsinki, Finland. Very few AC members were present, but the meeting was open to the general public and attracted some interest.

14. Decisions between meetings

In order to be able to accept interesting high quality course modules on a short notice, the AC is expected to handle course module selection and accreditation between meetings. A procedure (based on a criteria list to be prepared by the WP4 coordinator) is suggested in Part IV. Decisions can be taken per capsulam (via email or electronically if the website supports this). Teleconferencing or phone conferences could also be a possibility.

Part IV Selection and accreditation of course modules

15. Search / call procedure

A call for applications for course modules is published on the web (see Figure 4 below). Mailing lists for Europractice, Eurotraining and Education conferences can be used for a broad announcement of the call. Targeted personal emails to colleagues from members of the Academic Committee (and possibly also Steering Committee and Scientific Committee) can possibly be more effective. Contacts should be kept with well known educational providers like EPFL, Imec, CNFM, Eurotraining, IDESA and others for possible inclusion of already developed courses. Depending on the results of the gap analysis, the calls can be targeted to certain course topics.

Since one eligibility criteria is course evaluation, examples of course evaluation forms should be provided. Examples from Eurotraining can be a good starting point. Examples of previous excellent course modules should be posted on the website along with their course analysis.

Teaching and learning activities can be suggested, for instance:
- Advance reading + Homework
- Compulsory lectures and labs
- Homework corrected and discussed
- Lab reports submitted afterwards
- Course survey to all students
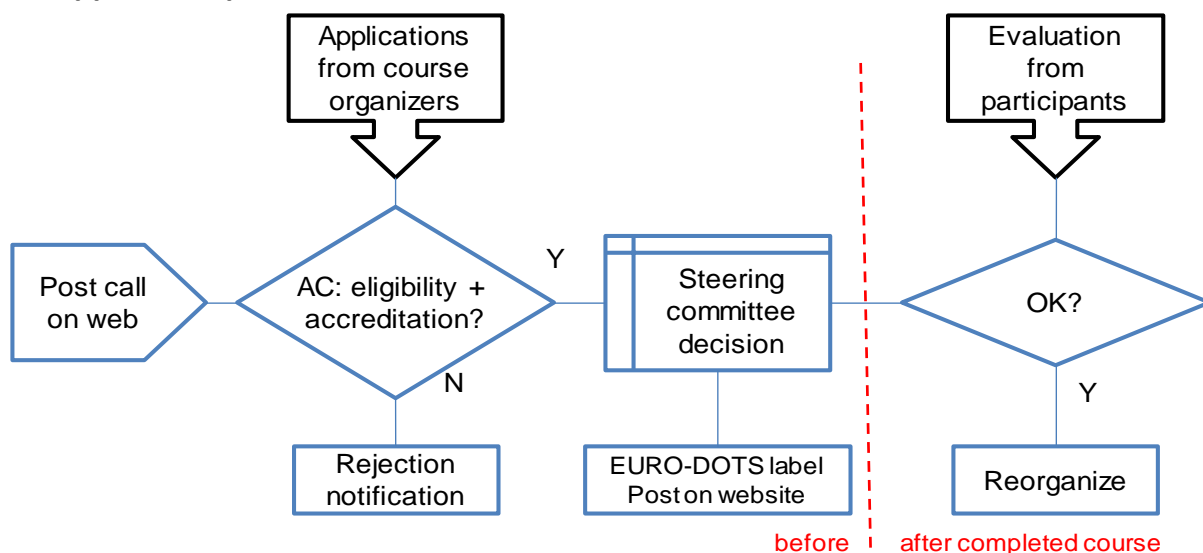
16. Application procedure

Figure 4 Proposed flow for selection and accreditation of course modules.

Course applications are submitted using the Course Application Form (CAF) with requested appendices (course description or invitation flyer). Presently the form exists in draft format for

printing and filling in manually, or for downloading and submission by email. In the future a fully electronic application form on the website should be investigated. Initially the chair of the Academic Committee (AC) will be the recipient of electronic and paper submissions. The applications are made available to all members of the AC, and the Course Review Form (CRF) is used by AC members for easy reviewing. If one or more of the basic eligibility criteria are not fulfilled, a rejection notification or a request for additional information is sent to the applicant. Within a set amount of time a recommendation is made from the AC to the Steering Committee based on the eligibility criteria, see below. If the Steering Committee decides to accept the course it is listed on the website. After the course is completed the course analysis from the applicant (incorporating the results from the course evaluation from the course participants) is used to decide if the course should be eligible for rerun without re-review.

17. Review and accreditation procedure

The accreditation of courses that are candidate for the EURO-DOTS portfolio is the duty of the Academic Committee.

In the interest of reaching fast decisions, so that course modules can be posted for inclusion in the scholarship section and attract many students, the following is suggested:

- An all-electronic handling is suggested, similar to the review of manuscripts/abstracts
- All members of the AC read the applications and review within two weeks
- Review verdict can be Accept / Reject / Abstain / No time
- As soon as a course module has at least three positive reviews, the Academic Committee delivers its recommendation to the EURO-DOTS Steering Committee, including the related comments.
- A negative decision should particularly be commented and justified, in order to return to the course provider with a feedback on the weaknesses of the application and the items to be improved.
- A positive decision qualifies the course to bear the EURO-DOTS Quality Label.
- The motivated decision is officially forwarded to the course provider by the Steering Committee.

18. Eligibility criteria for selection of course modules

For each course submitted to EURO-DOTS for accreditation, the application should address each of the Eligibility Criteria detailed in D3.2 (and slightly amended after the first AC meeting).

These criteria can be summarized as follows:

- Modular, intensive course (by preference of one week duration).
- Timely announcement of the course with all details on program and organization.
- Quality and scientific level.
- Expertise in the field of the group responsible for the scientific program.
- Lecture notes or other support.
- Infrastructure and organization.

- Course in the domain of micro-nano-electronics and associated fields.
- Accessibility to both PhD students and professionals.
- Registration fee of PhD students within an imposed limit.
- Course fitting the rules for the proposed number of ECTS credits (hours, level).
- Course accredited by the Doctoral School of at least one European university and to be progressively accredited by other major European universities, based on accreditation by the Academic Committee of EURO-DOTS.
- Exam organized at the completion of the course.
- Certificate of course attendance, successful presentation of an exam, and related credits.
- Mandatory evaluation of each course by all participants.

Based on the analysis of national and European initiatives for accreditation of courses at the PhD level, the 3rd criteria (quality and scientific level) can be detailed according to the following items:

- Intended – or potential – learning outcomes
  Course quality: state-of-the art level, coherence
  Teachers qualifications (knowledge, skills, competences)
  Sound evaluation questionnaire
  Exam/test after course completion
- Teaching/learning environment
  Facilities, staff, overall organization quality, enabling students to achieve the intended learning outcome
- Achieved learning of courses based on student's assessment
  This point can only be addressed after the first edition of a course. It is based both on the student's evaluation/assessment and on the result of their exam/test.

19. Course analysis and improvement

After the course is finished, the course responsible must submit a course analysis which includes a course survey among the participating students. A template for course analysis and suggested survey questions will be made available on the website. If the quality is deemed high enough, the course can be listed for rerun without re-review.

All course syllabi and course analyses should be made available on the website after course modules finish in the interest of public relations, specifically

- Attracting students
- Attracting new course modules
- Attracting funding for new scholarships
- Scientific review of EURO-DOTS program

Part V Results of first and second call for courses

20. First call for courses

The announcement was posted on the EURO-DOTS website and spread on personal and official mailing lists June 10th, 2011. During the fall a total of 33 courses were submitted from seven countries. The Academic Committee decided to accept all. The list of course topics follows:

Bratislava
- Complex Analysis of Advanced Micro-/Nano-electronic Structures
- "Nanocrystals Inside : Fabrication of NMOS memory devices with silicon nanocrystals embedded in an ultra thin SiO2"
- "Gaz sensors":Chemical synthesis and integration of nano-objects for micro-electronic applications
- Europhot
- Bioelectronics
- MOSFET fabrication and characterization

CNFM
- Advanced Microscopy
- MOSFET on Thin Si Diaphragm as a Pressure Sensor
- "Developments in clean room and practical applications of silicon nanowires and devices"
- "Silicon Thin Film Transistors on Transparent and FlexibleSubstrate"
- "Micro and nanotechnology applications: Fabrication and nanocharacterization"
- Micro-nanotechnologies
- "Soft lithography technologies for biotechnology and nanomedecine"

Graz
- Winter School on Organic Electronics - Self-Assembly and Hybrid Devices

Udine
- Nano-scale MOS transistors: Semi-classical modeling and applications

CNFM
- Electromagnetic compatibility of Integrated Circuits

IMEC
- Nanoscale CMOS process technology
- Beyond CMOS
- Nanometer CMOS ICs

Bertinoro
- Fifth Device Modelling Sinano School

CNFM
- Electrical Characterization of Semiconductors Materials and Devices
- Micro-Power Analog IC Design
- RF Analog IC Design
- High-Performance Data Converters

MEAD
- Cryptographic Engineering
- Advanced Analog CMOS IC Design
- Practical Aspects of Mixed-Signal IC Design
- Power Management
- Advanced Delta-Sigma Converters Design

IDESA
- Advanced Analog Implementation flow
- Advanced Digital Physical Implementation flow
- Advanced RF Implementation flow
- Design for Manufacturability flow

Some common issues with the first set of courses were:

- Dates were not decided at time of application.
- Uncertainty whether quality and scientific level high enough.
- Plan for lecture notes or other support not specified.
- Exam organization at the completion of the course.
- Only a few of the AC actually participated in the reviews.
- Course fee not decided.

21. Second call for courses

The announcement was posted on the EURO-DOTS website and spread on personal and official mailing lists March 15th, 2012. During the spring (until May 6th) a total of five courses have been submitted from four countries.

Based on surveys with industry and academia it was decided that a second call for courses would be made with request for specific topics (from second call of papers):

1. Highest priority

     1) electronic system design flow; design of embedded systems & software

     2) advanced signal processing for electronic systems

     3) integrated high-voltage, high-power design & technology (GaN, SiC...)

     4) variability effects and their mitigation in advanced technologies

     5) advanced sensors and smart sensor systems

     6) 3D integration : technology and design

     7) security and dependability in electronic systems

2. High priority

     8) opto-electronics and photonics (incl. PV)

     9) high-frequency and mm-wave IC design

     10) energy harvesting and autonomous applications

     11) design for short-range applications (WSN, BAN...)

     12) IP management and valorization (for PhD students)

3. Lower priority (due to already partial overlap with existing courses)

     13) biomedical electronics & biosensors

     14) reliability and testing of ICs

     15) emerging materials and devices (advanced)

     16) organic electronics: technology and design

Of these five submitted, three were accepted, one rejected, and one is pending decision. Topics:

- Reliability of micro-electronics assemblies (CNFM)
- Topics in microelectronics (Pavia)
- Combo test training course (CNFM)
- MEMS design and prototyping (STIMESI, submitted January)
- Compound Semiconductor Device Fabrication (Tyndall/Cork)

Two new issues came up with these proposals:

1. The Modularity criteria was questioned, when one course was rejected for having five different topics in 2.5 days. It was decided that the course module criteria should be maintained but that a topic of "technology survey" be introduced in the next call for courses.

2. The amount of ECTS credits was tested with a submission claiming 5 ECTS for one week of short course. This was rejected due to the common agreement that 1 academic year corresponds to 60 ECTS and therefore 25-30 student hours are required per ECTS. The reason 3 ECTS is the standard for a 1 week course module is that some preparation or study afterwards is required to pass the exam.
   [http://en.wikipedia.org/wiki/European_Credit_Transfer_and_Accumulation_System]