


**Results of the EU-SOLARIS
Preparatory Phase (Part II)**

Wednesday 28th of September 2016
Brussels (Belgium)

EU SOLARIS



The EU-SOLARIS Project is co-funded
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EU-SOLARIS Training Aspects

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EU-SOLARIS Final Conference - 28.09.2016

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- **Results of the EU-SOLARIS Preparatory Phase project – Training Aspects:**

Task 6.5 – Training

(Leader: UEVORA/IPES, Participants: CTAER, PSA, CNRS, DLR, APTL, ENEA, LNEG, GUNAM, SELCUK U.)

Goal: EU-SOLARIS intends to be the reference for training on CST (Concentrated Solar Thermal) technologies in Europe, in order to promote the creation of young generation of ‘solar’ researchers.

- **Survey on existing CST training offer in Europe and creation of an EU-SOLARIS training database.**

EU-SOLARIS T6.5.1: Survey of existing CST training offer

* Required

1. Name of the course/training action *

2. Responsible institution *

Please name all involved institutions, when more than one

3. Type of action *

Description of the training action in terms of its duration and scope

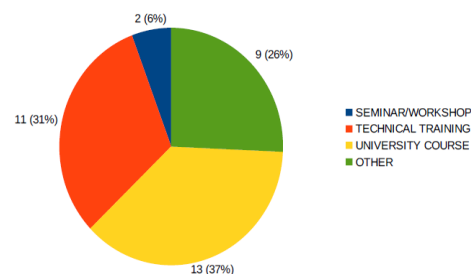
Seminar/Workshop

Technical training

University course

Other:

Distribution of training actions by Action Type



Link: <http://goo.gl/forms/vdYnfH8nGc>

• EU-SOLARIS courses and scheduling

- ✓ **Seminars:** short-term (1-2 days) actions aimed at non-technical audiences;
- ✓ **Technical training:** short and/or medium term (1 to 3 months) actions aimed at professional technical audiences;
- ✓ **Pre-Doctoral training:** medium term (1 semester) actions, similar to a master course;
- ✓ **Doctoral training:** long term (2 semesters) action aimed at Doctoral students and integrated with the doctoral programme.

EU-SOLARIS courses scheduling.

Year	Quarter	Seminars	Technical training	Pre-Doctoral training	Doctoral training
1	Q1	Seminar 1			
	Q2	Seminar 2	x		
	Q3	Seminar 3			x
	Q4	Seminar 4	x	x	
2	Q1	Seminar 1			
	Q2	Seminar 2	x		
	Q3	Seminar 3			x
	Q4	Seminar 4	x	x	

• EU-SOLARIS courses contents (topics covered)

- ✓ From the analysis of the database, the major gaps on existing training offer were identified and the courses contents were defined.

Module	Seminars	Technical training	Pre-Doctoral training	Doctoral training
		Non-technical audiences	Technicians, engineers	Under-grad MSc students
1 CST Overview	SEMINAR 1		x	x
2 Introduction to Concentrating solar Thermal Systems		x	x	x
3 Solar Resource		x	x	x
4 Solar Concentration Optics		x	x	x
5 Solar Concentrator Materials		x	x	x
6 Heat Transfer Fluids		x	x	x
7 Power Block		x		x
8 Thermal Storage		x	x	x
9 Grid Connection	SEMINAR 3	x		x
10 Hybridization		x		x
11 CHP applications	SEMINAR 4		x	x
12 Plant Operation and Maintenance		x		x
13 Simulation and Optimization of CST Plants			x	x
14 Economical and Financial Topics	SEMINAR 2		x	x
15 Alternate and future applications			x	x

- **Procedure for an internship programme: cost estimate**

- ✓ Assumptions based on a Spanish master course on Solar Energy and CST power plants (provided by EU-SOLARIS partners).

Unit costs

Type	Value
Staff	175€/hour
Travel & Subsistence	1000€/person + 139€/day/person
References (texts, books, etc.) with translation	225€/12pages/hour

Number of teachers/researchers

Type	Duration	Number of teaches/researchers
Seminars	1-2 days (6-8h)	1
Technical Training	1-3 months (150-250h)	10-17
Pre-Doctoral Training	1 semester (300-500h)	20-34
Doctoral Training	2 semesters (600-800h)	40-54

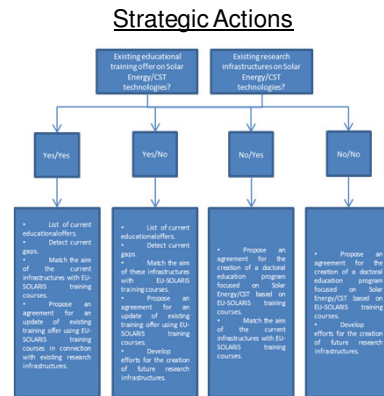
- **Procedure for an internship programme: cost estimate**

- ✓ Final cost estimate for each training action.

Action	Duration	Staff costs	Travel & Subsistence	References (texts, books, etc.) with translation	Total
Seminars	1-2 days (6-8h)	1050€-1400€	1139€-1278€	1350€-1800€	14 156€-17 912€ (4 Seminars)
Technical Training	1-3 months (150-250h)	26 250€-43 750€	16950€-28815€	33 750€-56 250€	76 950€-85 065€
Pre-Doctoral Training	1 semester (300-500h)	52 500€-87 500€	33900€-54630€	67 500€-112 500€	153 900€-254 630€
Doctoral Training	2 semesters (600-800h)	105 000€-140 000€	67800€-91530€	135 000€-180 000€	307 800€-411 530€

• **Framework agreement with Universities for a doctoral education**

- ✓ There are several imbalances in the current training offer (educational and infrastructural) among several Universities;
- ✓ Such agreement will have to be achieved case by case, taking into account the current situation of each University.



• **SWOT Analysis**

<p>Strengths</p> <ul style="list-style-type: none"> • EU-SOLARIS Consortium builds upon the capacity of the Institutions at the forefront of the CST field; • Several European Universities already have educational training/infrastructure offer in Solar Energy/CST technologies. 	S	W	<p>Weaknesses</p> <ul style="list-style-type: none"> • There are many imbalances in the current training offer among the European Universities; • The general atmosphere produced by the economic crisis is one of disinvestment; • Institutions are more limited today than they were in their capacity/autonomy for managing budgets and investments.
<p>Opportunities</p> <ul style="list-style-type: none"> • The framework agreement will help to build up a new and strong cooperation between Universities, Research Centers and Industrial partners; • It is perfectly aligned with its vision for European economic and educational competitiveness. 	O	T	<p>Threats</p> <ul style="list-style-type: none"> • It is not guaranteed that all Universities are willing, in practice, to change/adapt their current training offer; • The achievement of the goals proposed depends from future funding resources.

- **Internal Deliverables (ID) and Deliverables (D)**

- ✓ ID.6.5.1 - *Survey on existing training offer on CST and proposal of an EU-SOLARIS course schedule (M24);*
- ✓ ID.6.5.2 - *Procedure for an internship programme (M36);*
- ✓ ID.6.5.3 - *Proposal of a framework agreement with several Universities for a doctoral education programme (M45);*
- ✓ D6.2 – *Training Activities (M48).*



Thank you for your attention!

For more information:

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