Year		Objectives (Objective name)	Associated activities
YEAR I	1	**Objective 1.** Developing of the conceptual-theoretical framework in the field of the VSS-LMS algorithms.	**1.1.** Organizing and studying the existing reference materials.
			1.2. Theoretical analysis on the main categories of VSS-LMS algorithms (based on minimization of the error energy, based on coefficients MSD, based on look-up tables, etc.).
			1.3. Performance evaluation based on Matlab simulations.
	2	**Objective 2.** Developing of a new mathematical model to monitory the convergence of the LMS-type algorithms, as a function of the step-size parameter.	**2.1.** Convergence analysis of the LMS-type algorithms, based on new relations between adaptation parameters.
			2.2. Defining new cost functions to monitory the convergence state of the LMS-type algorithms.
			2.3. Performance evaluation of the new mathematical models based on Matlab simulations.
	3	**Objective 3.** Developing of new VSS-LMS adaptive algorithms, based on the new mathematical models for monitoring the convergence state.	**3.1.** Developing new VSS-LMS algorithms based on the proposed mathematical models (for monitory the convergence state).
			3.2. Convergence analysis of the proposed VSS-LMS-type algorithms.
			3.3. Performance evaluation of the proposed VSS-LMS algorithms based on Matlab simulations.
	1	*Objective 1c.* – (I) Organizing of the information/documentation activities (*complementary objective*). - associated with <u>Objective 1</u>.	*1c.1.I.* Providing informative materials (books, transactions and magazines, standards).
			1c.2.I. Organizing a meeting schedule and a data base.
			1c.3.I. Participating to national and international scientific symposiums in the domain (not necessary to present papers).
	2	*Objective 2c.* – (I) Organizing the work-groups and accomplish the scientific activities (*complementary objective*).	*2c.1.I.* Establishing the work-groups.
			2c.2.I. Accomplishing the scientific activities by internal evaluations within the team.
	3	*Objective 3c.* – (I) Organizing the dissemination of the results (*complementary objective*).	*3c.1.I.* Organizing the participation to national and international conferences. Establishing/maintaining contacts with national and international partners.
			3c.2.I. Publishing a paper in an international ISI journal.
			3c.3.I. Establishing opportunities to participate in European research projects.
	4	*Objective 4c.* – (I) Organizing the reports activities (*complementary objective*).	*4c.1.I.* Completing the documents related to the annual phase.
			4c.2.I. Providing the annual research report.
YEAR II	1	**Objective 4.** Developing of software support for the implementation of the proposed VSS-LMS adaptive algorithms.	**4.1.** Theoretical study of the finite precision effects for the proposed VSS-LMS algorithms and computational complexity evaluation.
			4.2. VHDL implementation of the proposed VSS-LMS algorithms in acoustic echo cancellation scenario.
			4.3. FPGA implementation (Virtex platform) of the proposed VSS-LMS algorithms in acoustic echo cancellation scenario, and performance evaluation.
	2	**Objective 5.** Developing of the conceptual-theoretical framework in the field of the VFF-RLS algorithms.	**5.1.** Organizing and studying the existing reference materials.
			5.2. Theoretical analysis on the main categories of VFF-RLS algorithms (based on Newton-type algorithms, based on energy error gradient minimization etc.).
			5.3. Performance evaluation based on Matlab simulations.
	3	**Objective 6.** Developing of a new mathematical model to monitory the convergence of the RLS-type algorithms, as a function of the forgetting factor.	**6.1.** Convergence analysis of the RLS-type algorithms, based on new relations between adaptation parameters.
			6.2. Defining new cost functions to monitory the convergence state of the RLS-type algorithms.
			6.3. Performance evaluation of the new mathematical models based on Matlab simulations.

	4	**Objective 7.** Developing of new VFF-RLS adaptive algorithms, based on the new mathematical models for monitoring the convergence state.	**7.1.** Developing new VFF-RLS algorithms based on the proposed mathematical models (for monitory the convergence state).
			7.2. Convergence analysis of the proposed VFF-RLS-type algorithms.
			7.3. Performance evaluation of the proposed VFF-RLS algorithms based on Matlab simulations.
	1	*Objective 1c.* – (**II**) Organizing of the information/documentation activities (*complementary objective*). - associated with <u>Objective 5</u>.	*1c.1.II.* Providing informative materials (books, transactions and magazines, standards).
			1c.2.II. Organizing a meeting schedule and a data base.
			1c.3.II. Participating to national and international scientific symposiums in the domain (not necessary to present papers).
	2	*Objective 2c.* – (**II**) Organizing the work-groups and accomplish the scientific activities (*complementary objective*).	*2c.1.II.* Establishing the work-groups.
			2c.2.II. Accomplishing the scientific activities by internal evaluations within the team.
	3	*Objective 3c.* – (**II**) Organizing the dissemination of the results (*complementary objective*).	*3c.1.II.* Organizing the participation to national and international conferences. Establishing/maintaining contacts with national and international partners.
			3c.2.II. Publishing a paper in an international ISI journal.
			3c.3.II. Establishing opportunities to participate in European research projects.
	4	*Objective 4c.* – (**II**) Organizing the reports activities (*complementary objective*).	*4c.1.II.* Completing the documents related to the annual phase.
			4c.2.II. Providing the annual research report.
	5	*Objective 5c.* – (**I**) Resources allocation for the experimental platform (*complementary objective*). - associated with <u>Objective 4</u>.	*5c.1.I.* Establishing the implementation plan.
			5c.2.I. Evaluating the required material resources.
			5c.3.I. Providing the necessary components/equipments.
YEAR III	1	**Objective 8.** Developing of the conceptual-theoretical framework in the field of the RLS algorithms with reduced complexity, based on the DCD methods.	**8.1.** Theoretical study of the DCD methods.
			8.2. Convergence analysis of the DCD-RLS-type algorithms.
			8.3. Performance analysis of the DCD-RLS algorithms based on Matlab simulations.
	2	**Objective 9.** Developing of new VFF-RLS adaptive algorithms with reduced computational complexity.	**9.1.** Developing new methods for computing the variable forgetting factor within the DCD iterations.
			9.2. Developing new VFF-RLS algorithms based on DCD methods.
			9.3. Performance analysis of the proposed DCD-VFF-RLS algorithms based on Matlab simulations.
	3	**Objective 10.** Developing of software support for the implementation of the proposed DCD-VFF-RLS adaptive algorithms.	**10.1.** Theoretical study of the finite precision effects for the proposed DCD-VFF-RLS algorithms and computational complexity evaluation.
			10.2. VHDL implementation of the proposed DCD-VFF-RLS algorithms in acoustic echo cancellation scenario.
			10.3. FPGA implementation (Virtex platform) of the proposed DCD-VFF-RLS algorithms in acoustic echo cancellation scenario, and performance evaluation.
	1	*Objective 1c.* – (**III**) Organizing of the information/documentation activities (*complementary objective*). - associated with <u>Objective 8</u>.	*1c.1.III.* Providing informative materials (books, transactions and magazines, standards).
			1c.2.III. Organizing a meeting schedule and a data base.
			1c.3.III. Participating to national and international scientific symposiums in the domain (not necessary to present papers).
	2	*Objective 2c.* – (**III**) Organizing the work-groups and accomplish the scientific activities (*complementary objective*).	*2c.1.III.* Establishing the work-groups.
			2c.2.III. Accomplishing the scientific activities by internal evaluations within the team.

	3	*__Objective 3c.__* **– (III)** Organizing the dissemination of the results (*complementary objective*).	*3c.1.III.* Organizing the participation to national and international conferences. Establishing/maintaining contacts with national and international partners.
			3c.2.III. Publishing a paper in an international ISI journal.
			3c.3.III. Establishing opportunities to participate in European research projects.
	4	*__Objective 4c.__* **– (III)** Organizing the reports activities (*complementary objective*).	*4c.1.III.* Completing the documents related to the final phase.
			4c.2.III. Providing the final research report.
	5	*__Objective 5c.__* **– (II)** Resources allocation for the experimental platform (*complementary objective*). - associated with Objective 10.	*5c.1.II.* Establishing the implementation plan.
			5c.2.II. Evaluating the required material resources.
			5c.3.II. Providing the necessary components/equipments.