

SOCRATES PROGRAMME
Education, Audivisual and Culture
Executive Agency
European Commision,
BOUR - B-1049 BRUSSELS



DESCRIPTION OF MODULE (SCHEDULE)

MODULE	DEVELOPMENT PROCEDURAL SKILLS IN SCIENCE EDUCATION – CONSTRUCTIVIST APPROACH
<i>Volume of module (credit, hours)</i>	Four credits, 160 hours
<i>The brief description of the module</i>	<p>The module is designe as one lead to action of pre-service science teacher students. They have to reache an understanding of the aims of science education in the framework of constructivist approach. The focus is particular on the development of procedural skills. Significant and specific teaching strategies will be introduced and explore as will their influence on student’s cognitive, communicative and social development. The basic elements of visual literacy and varied visual tools will be examined. The content of the module include varied tools as collecting, interpreting and communicating data as tables, diagrams, charts, using symbols and numbers. Students will produce their own educational resources that promote active learning.</p>
<i>Competencies to be achieved</i>	<p>Pre-service teachers students must demonstrate that:</p> <ol style="list-style-type: none"> 1. they have a secure knowledge and understanding of the subject, namly Science they are trained to teach; 2. they define, describe and understand the aims of science education – STL in the framework of constructivist approach;

	<ol style="list-style-type: none"> 3. they know the role of process skills in science education, dimensions and nature of progression in process skills; 4. characterize, explain, give examples and demonstrate strategies for supporting process skills development.
<i>Goals of studies</i>	<ul style="list-style-type: none"> • Define and describe the aims of science education and reached an understanding of what is STL; • Build and develop process skills in Science; • Use effectively varied teaching strategies to implement developing of procedural skills;
<i>Content of module (topics)</i>	<ol style="list-style-type: none"> 1. Scientific and technology literacy. Components and levels of scientific literacy 2. Constructivist approach in Science education 3. Building and developing scientific process skills 4. Strategies for supporting process skills development and assessment 5. Plan, organize and deliver an active learning project
<i>Strategies of teaching / training</i>	The activities include lectures, seminars, inter-active workshops, practical work. There will be an emphasis on practical activities supported by a strong theoretical mainstay. Students will implement their knowledge and skills in lesson planning and performing.
<i>Distribution of hours of the module</i>	<p>Theoretical works – 10 hours Practical works – 32 hours Home work / Individual project ect. – 58 hours Self-studies - 60 Total: 160 hours</p>
<i>Final evaluation criteria</i>	Plan, organize and deliver active learning project
<i>Strategies and techniques of evaluation of achievements</i>	Evidence of achievement and understanding are present in the process of teaching, particularly in how pre-service teachers communicate subject knowledge, present complex ideas, confidently use strategies for developing and evaluating procedural skills, plan and set targets and lessons, follow-on discussions with tutor.
<i>References (main sources)</i>	A range of published materials (books, articles), web addresses, video films on science education specified to each session.